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THE HUMAN CONSTITUTION IN ITS RELATION TO GASTRO-INTESTINAL DISORDERS *

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BALTIMORE

From the earliest times, medical literature has abounded in various conceptions of the human constitution and diathesis, and considerable attention has been directed at certain periods to the importance of this factor in its relation to disease. Hippocrates, in his treatise on Airs, Waters, Place, pointed to this association; and in more recent times Laycock, Addison and Jonathan Hutchinson have noted a relationship between types of individuals and their susceptibility to certain diseases. For a time, however, interest was apparently lost in the study of the relation of hereditary characteristics to disease, and not until within recent years has renewed study again been directed to this important subject. This is clearly manifested by the extensive literature that has made its appearance within a comparatively short period. One need only point to the interesting publications of Aschner, Bauer, Bondi, Draper, Faber, Freund and von den Velden, Hoffman, Kraus, Kretschmer, Martius, Pearl, Pende, Pfaundler, Siemens and Viola; and there are many others.

The work of Draper is especially valuable in that it demonstrates the importance of the study of the human constitution far more scientifically as the result of the anthropometric and biometric methods, though these had been previously described by Di Giovanni.

According to Draper, constitution is "that aggregate of hereditarial characters influenced more or less by environment, which determines the individual's reaction, successful or unsuccessful, to the stress of environment." He has recently again pointed out, however, that it is not always a simple matter to determine which are the actual inherited characteristics and which are imitative. There are, according to Draper, two factors associated with the human constitution: the one definitely inherited, termed idiotypic or genotypic, the other not inherited but the result of environment, called paratypic. The so-called phenotype, the individual, represents the genotype reacted on by the paratypic factor; heredity reacted on by the forces of environment.

These definitions being recognized, it has now become well established that not only do external conditions bear a direct influence on the production and the course of disease but the inherent characteristics of the tissues of the body themselves and their resistance and reactions to these influences likewise play an important rôle in this respect.

In the study of the constitution, Draper directs attention to the individual's personality, which he has divided into his four so-called panels: (1) anatomic; (2) physiologic; (3) immunologic, and (4) psychologic. Direct observation and correlation of these characters will lead to a clearer understanding of the personality of the patient. It is quite obvious that marked variations may occur in various normal individuals in each of the four panels, for even many differences formerly considered as abnormal are now recognized as being within normal bounds. On the other hand, variations may occur in certain constitutional types in such a form as to be more easily reacted on by external stimuli and thus lead to the production of disease.

In furthering our knowledge of the human constitution, much may yet be expected in this country from the splendid work of Draper at the Constitutional Clinic of the Presbyterian Hospital and from that inaugurated by Raymond Pearl and his co-workers in the Division of Human Genetics of the Institute of Biological Research at the Johns Hopkins University and the Constitutional Clinic of the Johns Hopkins Hospital. Two lines of research have been directed by Pearl. In the first there is a series of family records, which have been subjected to various forms of genetic and statistical analysis. The second approach has been through the biometric study of the autopsy records of the Johns Hopkins Hospital.

It is quite possible that by means of a more intensive study of the human constitution certain diseases may become recognized far earlier and their progress arrested before serious inroads have been made into the patient's health.

It is my object, however, not to discuss the importance of constitution to disease in general but to limit my remarks to this relation with the gastro-intestinal tract.

THE MOUTH

In considering the congenital abnormalities in the mouth, one's attention is first attracted to those associated with the teeth. In the higher development of the masticating apparatus from the the lower forms of mammals the wide separation of the teeth has been overcome and the teeth have moved closer to one another. This anomaly, however, is still observed, according to Bauer, in certain lower human races and especially in the Papuans. It is occasionally noted in otherwise normal individuals as a constitutional deficiency. Supernumerary teeth occur in various types and may be shaped normally or may be abnormal in both size and form. They are occasionally dwarfed (micro-

* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

dontia.) There are a number of theories regarding the origin of supernumerary teeth. According to many authorities this anomaly is at least in many instances a reversion to a primitive type of development. Deficiency in the number of teeth is not uncommon as a constitutional inadequacy. Single teeth may be absent or entire groups may be lacking, and even an entire absence of teeth has been observed. A rather interesting relation of dental deficiencies to hypertrichosis has been observed in certain instances of the so-called hairy men. Other abnormalities may exist with a deficiency in dental development. Cases of polydactylism have been recorded and in some instances malformations of the eyes and the anus. Inherited anomalies of the jaw bones with malposition of the teeth may lead to abnormalities of occlusion.

Cleft palate, which may be complete or incomplete, is usually associated with cleft lip. This is a congenital defect in which heredity plays an important rôle. Passavant reports a family of twenty-four members of whom seven were affected with cleft palate and cleft lip.

THE TONGUE

Congenital malformations of the tongue due to developmental defects are rather rare. A few instances have been recorded in which a complete congenital absence of the tongue has been observed and a number in which the tongue was found to be partly absent. In nearly all these anomalies, additional errors in development have been noted, especially in the lower jaw or face. Among other congenital deficiencies occurring in connection with the tongue may be mentioned short frenum and bifid tongue, double tongue, tripid tongue, congenital adherent tongue and tongue-tie.

THE ESOPHAGUS

Congenital malformations of the esophagus, though infrequent, may assume considerable clinical importance. The most common of these anomalies are the esophagotracheal fistulas. As in some instances the communication between the esophagus and trachea occurs through two separate fistulas, all fluids swallowed pass into the air passages. As a result of the remains of these fistulas, congenital diverticula may be produced which in late life may give rise to considerable disturbance.

Congenital stricture of the esophagus is of interest. Mehnert has demonstrated thirteen areas in which physiologic narrowings occur and at which stricture may take place, the most common being at the point of juncture of the pharyngeal pouch and foregut.

Imperforate esophagus is a congenital anomaly most commonly occurring in the mediastinal portion, the upper segment appearing as a blind pouch, the lower usually opening into the stomach, the center appearing as a cord. It is frequently associated with other congenital anomalies.

The following case is of interest: A female infant, the result of a marriage of cousins and born by normal delivery, refused to nurse and regurgitated water given by bottle. It was found impossible to pass a catheter into the stomach and, notwithstanding several attempts made for this purpose, the tip of the instrument located itself apparently in a blind esophageal pouch. The infant died in three days. At autopsy, the esophagus was found to end in a blind pouch in its lower part, being joined by a fibrous band to another blind pouch extending upward from the stomach. It is interesting to note that within two years a second female infant was born of the same marriage with an imperforate anus.

Cardiospasm occurs at times as a constitutional anomaly. Although usually observed in adults, it actually, according to Jackson, has its origin in childhood, which suggests to him a congenital factor with a possibility of being atavistic.

THE STOMACH AND INTESTINE

In a paper published by Jacob Kaufmann on "Lymphocytosis as a Constitutional Derangement in Chronic Diseases of the Digestive Tract," the following well timed remarks occur: "We must emancipate ourselves from the narrow view which considers only the local disorder, be it ever so pronounced, and take into account the fact that a constitutional derangement is often the basis for the development of most of these disorders." The introduction of the roentgen ray in the study of the gastro-intestinal tract has been of great aid in clearing up this problem and in further drawing attention to the relation of certain constitutional physical types to roentgenolgic observations. As is well known, the older writers had frequently associated, in a general way, various forms of indigestion with temperament and constitutional nervous disposition; but it has only been in recent years that a clearer conception of this problem has been obtained through scientific methods carried out in the form of anthropometric studies. Glenard, in 1885, was the first to describe gastroptosis in its relation to general visceroptosis as a distinct clinical entity. In 1907, Stiller called attention to the enteroptotic habitus, a constitutional type, and pointed to the stomach as the mirror of the constitutional architecture. Schlesinger, in 1910, advanced a step further by noting a relation between gastric tonus and physical characteristics and described four distinct types of stomachs: the hypertonic, orthotonic, hypotonic and atonic forms. It was left, however, to Campbell and Conybeare, Mills and Moody, Van Nuys and Chamberlain to demonstrate by means of their anthropometric studies the relation between habitus of the individual and gastric tonus. It was shown that many variations in appearance and position occur in the stomach of a normal individual, the same stomach acting variously at different times.

Campbell and Conybeare, who examined normal male students roentgenologically as well as by means of fractional gastric test meals, point to the relationship between hypertonus and hyperacidity on the one hand and hypotonus and hypo-acidity on the other. They attempt to correlate these observations with the gastric motility and general physique of the individual and conclude that hypertonicity, hyperacidity and a high hypermotile stomach occur most frequently in males of the broad chested, athletic, sthenic type. Hypotonus, subacidity and slow emptying low stomach were observed most frequently in narrow chested men of low physical development. Between these extreme types there remains a large group presenting normal tonus and normal acidity.

In a most exhaustive study, Mills investigated the relation of bodily habitus to visceral form, position, tonus and motility and directed attention to three factors:

1. The great variation in general physique and resulting regional bodily capacities, which can be determined by comparative graphic records.

2. The great variation in visceral forms, position, tonus and motility.

3. The fact that certain types of physique are associated with definite types of visceral topography and degrees of certain physiologic processes.

He further calls attention to four types, the hypersthenic, sthenic, hyposthenic and asthenic individuals, and especially distinguishes between the hypersthenic and the asthenic habitus. Since, according to Mills, there is a definite relationship of bodily habitus to visceral form, position, tonus and motility, there are certain factors in the form of the general bodily architecture and variation in alimentary tonus governing this relationship. Thus in the hypersthenic type, as the heavy athletic individual, the thorax being short longitudinally and the abdomen long, the lower lateral diameters of the thorax and upper abdomen are great while the pelvis is of comparatively small capacity. The stomach is hypertonic. In this condition, a high digestive tract is noted. On the other hand, in the asthenic type, as in the individual of a frail physique, the thorax is long and the abdomen is short. In this condition, the greatest capacity is observed in the pelvis, the upper part of the abdomen being comparatively small. The gastric tonus is poor and the stomach and intestines are found low in the abdomen. Between the sthenic and the asthenic constitutional forms, intermediary sub-types are described by Mills which represent variations from either extreme but still remain entirely within normal limits.

Mills concludes as the result of his orthodiagraphic investigations that "man is a creature of fixed physical characteristics. An infinite variation in bodily physique, in visceral form, tonus and motility occurs. Certain types of physiques are associated with certain types of visceral topography, tonus and motility."

Hurst calls attention to two types of stomach, the long and the short forms. If the stomach is long, it assumes the vertical position; if it is short, its position is high and almost horizontal. These types should be viewed, according to Hurst, as simple normal anatomic variations.

The conclusions arrived at by Moody and his co-workers are of especial interest:

1. The long stomach reaching below the interiliac line and often into the true pelvis is found in 80 per cent of the group of healthy adults. The type of stomach with its greater curvature dipping, in some cases, far below the interiliac line and its lesser curvature dipping also below this line is normal. The high stomach occurs in 17 per cent of normal males and 7 per cent of normal females and the low stomach in 3.6 per cent of males and 15 per cent of females.

2. The low position of the stomach is seldom or never a cause of gastro-intestinal disturbance.

3. The low colon lying in the true pelvis is also normal and is seldom or never the cause of gastro-intestinal disturbance.

4. The strength of the abdominal muscles has little or no influence on the position of the stomach.

5. The use of the term gastroptosis and coloptosis is seldom justified.

These observers were unable to establish a constant relation between the build of the individual and the position of the stomach; the most powerfully built individuals in their series presented low stomachs and colons.

Alvarez likewise suggests that the genes that determine the position and shape of the stomach are not always closely related to those determining the build of the individual.

As the result of a series of roentgenographic measurements, Faber concludes that the length of the stomach of normal individuals may vary as much as from 18 to 84 cm. and that the constitutional enteroptotic type may persist throughout life without producing symptoms. On the other hand, symptoms of a more or less severe form may develop as the result of this condition.

From a study of 1,966 cases of visceroptosis, Bryant considers this condition by no means an irreparable calamity but an evidence of deficient development. Interest in this subject, according to him, is not new, as it has been depicted in art in the paintings of Botticelli and later among others in the work of Cranach and Memlinc as contrasted with the florid type portrayed by Rubens. Associated with visceroptosis there is frequently a gastro-intestinal atony and general asthenia—a constitutional deficiency commonly termed Stiller's diasthesis.

Since the introduction of the fractional method of gastric analysis, variations in the secretion either in the form of hyperchlorhydria or achlorhydria have been frequently disclosed in normal individuals as the result of a constitutional predisposition. According to Ryle, hyperchlorhydria occurs in 10 per cent and achlorhydria in 4 per cent of normal individuals. It has been maintained by Westphalen that hyperchlorhydria may be traced back as an inherited factor, the result of the excessive consumption of meat in previous generations. In a study of fifty individuals free from all digestive complaints examined in my clinic by means of fractional gastric analysis, 12 per cent revealed figures pointing directly to a hyperchlorhydria, three of a rather extreme degree.

Achlorhydria occurs not uncommonly, too, as an hereditary constitutional anomaly and has been frequently observed in children as a congenital condition. Einhorn first pointed out that in many of these cases there is an entire lack of gastric secretion persisting for years and not infrequently throughout life, during which the general health of the individual remains normal. The patient may present no digestive symptoms whatever and may consume many varieties of food without discomfort. This type of achylia is not uncommonly observed in members of the same family. Albie noted it seven times in more than one member of the same family and Undaondo in a mother and daughter; Hurst saw it in two sisters, and I have observed it in a father and two daughters and again in two brothers and their uncle. While this type of achylia gastrica may continue for years without producing untoward symptoms, well recognized digestive disturbances of a more or less severe type may ensue even after a long period of time. In the light of recent observations, too, it has been demonstrated that pernicious anemia may result, following a long continued achylia. In 1913, Faber presented three instances in which this disease developed in ten, seven and three years, respectively, following the detection of the achylia. Since then, numerous observations of this character have been reported. According to Hurst, about 16 per cent of individuals affected with constitutional achylias ultimately develop pernicious anemia. Not only, therefore, has a relationship been established between achylia gastrica and pernicious anemia, but a similar relation is known to exist with combined lateral sclerosis of the spinal cord. As a further evidence of the importance of achylia gastrica as a constitutional anomaly, Bauer points to its presence in other constitutional derangements of the digestive tract. It not uncommonly also occurs in neuropathic disturbances, is often associated with disorders of the endocrine

glands, and is frequently accompanied with a lymphocytosis. Achlorhydria was present in 6 per cent of fifty normal individuals in my series.

As the result of a critical review of the foregoing observations, the following conclusions seem justified:

1. There are marked variations under normal conditions in the form, position, tonus, motility and secretion of the stomach and intestine.

2. Individuals normally represent different constitutional types and therefore vary as markedly in their gastro-intestinal structural make-up as in their external appearance.

3. As the result of such constitutional variations, certain of these individuals are more prone to develop digestive upsets due often to even slight environmental influences.

Gastro-Intestinal Neuroses.—Constitutional asthenia of the vegetative nervous system is frequently manifested in the form of functional disturbances of the digestive tract, so-called vagotonia and sympathicotonia. In all gastro-intestinal neuroses there is a predisposition to the disorder inherent in the individual. The foundation rests on an unstable nervous system, which is often congenital. In the susceptible individual, the immediate existing cause of the symptoms is of an emotional nature such as excitement, anxiety, fear and worry. These hereditary neuroses are not uncommonly observed in a number of members of the same family, often limited to the gastro-intestinal tract, though at times the heart, respiratory or other organs may become similarly involved. An interchange of symptoms from one system to another is not unusual, and one type of gastro-intestinal neurosis is often transformed into another. The usual hereditary forms observed are disturbances of the appetite, rumination, aerophagy, nervous vomiting, flatulence and diarrhea.

Peptic Ulcer.—Considerable interest has been manifested in recent years as to the constitutional factor in its relation to peptic ulcer. This has been greatly increased through the anthropometric studies pointing more directly to this relationship. In Stiller's study of the asthenic habitus, it was pointed out that peptic ulcer occurred more frequently in this condition. This has, however, been disproved by Hegemann, who observed that ulcer occurred in but 14 per cent of asthenic individuals.

Draper, as the result of his anthropometric studies, points to a number of definite characteristics of ulcer. Important in this respect are certain facial tendencies in the form of a narrow facial angle and forward slanting incisors, with a smaller index of the central incisor teeth and the narrow forward dental arch. In addition, he calls attention to the relative lower location of the umbilicus as characteristic of the ulcer type. According to Draper there are certain anatomic characteristics of ulcer which distinguish it from gallbladder disease. These are in the form of a lower ponderal index (relation of weight to height); narrow subcostal angle; obtuse gonial angle (angle formed by the ascending and horizontal rami of the jaw) and a greater depth of chest. He also points out that ulcer individuals tend to an intermittent character of activity while gallbladder patients tend to a steadier, more continuous form of behavior. The difference in self confidence and timidity of the two classes is also marked. It may be said, according to Draper, that the mood of the ulcer individual is more unstable but that he reacts quickly to his environment and especially to fear, while the gallbladder patient is slow to react, is little affected by fear, and shows great stability of mood.

Stenbuck confirms Draper's conclusions that patients affected with peptic ulcer can usually be distinguished from those affected with other diseases by their characteristic facial appearance. He points to the following signs among others as indicative of the ulcer facies: The texture of the skin is apparently lifeless. The forehead is low and broad and, when wrinkled, the skin is cast into folds in spite of the thickness. The eyes are apparently small, glistening from under the heavy brows and supra-orbital ridge. The nose is straight and is not prominent. The ears are large and protrude. The mouth is broad, the lips thin and the chin large. The jaw bones are widely separated anteriorly as well as posteriorly. The masseter muscles as well as the infra-orbital ridges and nasolabial folds are prominent. The complexion is usually ruddy except in protracted cases and those associated with hemorrhage, in which there may be pallor. Edema of the forehead is usual.

Von Bergmann has suggested the rôle of spasmophilia as a constitutional factor in the etiology of ulcer. Following prolonged stimulation due to this cause, the sympathetic becomes partially or fully fatigued, allowing the vagus full play, free from inhibition, in consequence of which pylorospasm is produced, which if prolonged may be followed by ulceration. This theory has been more recently emphasized by Peritz and Fleischer, who also suggest that a spasmophilic disposition may be regarded as a constitutional background for the development of ulcer. In a large percentage of their series of cases, a generally irritable nervous system easily influenced by external stimuli was observed. The Aschner phenomenom (bulbar pressure producing a slowing of the pulse) was noted in 60 per cent of their ulcer patients, indicating a general hyperirritability of the vegetative nervous system. A certain number of these cases reacted as vagotonics to epinephrine.

Danzer has recently emphasized the constitutional concept as the essential feature in the etiology of peptic ulcer. According to his theory, this disorder is a general systemic and not a local disease, the more important factor being the constitutional background on which various causes may react in the production of the disorder. He arrived at this conclusion from his studies on the human capillaries. It was revealed that patients with gastric ulcer showed anomalies of the circulation of the skin of the fingers and also of the mucous membrane of the mouth analogous to those of the gastric mucosa. A capillary stasis of the gastric mucosa is present, followed by an erosion of the mucous membrane with the final development of typical ulceration.

Jacob Kaufmann has also formulated the conception that constitutional factors predominate in the development of peptic ulcer. He considers, for example, the hunger pain as one of the manifestations of systemic asthenia. It is a sign of an irritable stomach—a sensory neurosis—and is therefore but a symptom which may occur in conditions aside from ulcer. The definite evidence of the structural lesion must be established by other signs. The pain, vomiting and hemorrhage are only to a certain degree directly provoked by the structural lesions incident to the ulcerative process. These must be traced further back, largely to the systemic derangements underlying the disease.

The constitutional factor is further indicated by the occurrence of ulcer as a familial disorder. Numerous observations demonstrating this fact have been recorded.

In 289 cases of ulcer reported by Nelken, 49 (17 per cent) presented evidence of hereditary or familial gastric disorders; in 16 instances on the maternal side; in 21 on the paternal; in 23 in brothers or sisters, and in 3 in blood relatives. Rogers reports an interesting history of familial duodenal ulcer. There were 3 children in the family. The first, aged 6 remained well. The second died at the age of 2 months. At autopsy two acute ulcers of the duodenum were discovered. The third, aged 7 weeks, died and the autopsy here revealed the presence of three ulcers in the duodenum. Hurst, who likewise attaches much importance to his so-called gastric diathesis as the essential predisposing cause of both gastric and duodenal ulcer, also directs attention to the familial tendency of the disease. According to his observation, it occurs often in more than one member of a family, while in other instances there is evidence of the diathesis without ulceration in some members, one or more, however, presenting active ulceration. In one of the families of his series, the father and two of nine children were dyspeptics, while four others were victims of duodenal ulceration. In still another group, the mother and all of her three sons and one grandson had duodenal ulcerations. The familial tendency to this disease has been observed in a number of instances under my care. In one group, three brothers were affected with duodenal ulceration; in another two sisters and a brother and in still another a grandfather, father and two sons.

From the evidence presented, there can therefore be but slight doubt that definite predisposition to the formation of ulceration occurs at least in some instances. As further proof are the numerous cases in which such lesions are known definitely to have healed under observation and in which recurrences have been noted at other portions of the stomach and duodenum. Crohn has reported cases in which ulcerations of the duodenum have healed following gastro-enterostomy in which the new opening had to be undone on account of the formation of a gastrojejunal ulcer. Following the release of the gastro-enterostomy, the former ulcer recurred. Recognizing the underlying predisposition to ulceration, therefore, many surgeons nowadays prefer a radical procedure; that is, resection of the ulcer-bearing area to gastro-enterostomy, in order to lessen the possibility of a recurrence of the disease.

I will do no more than mention other disorders of the stomach, as congenital hypertrophic stenosis of the pylorus occurring both in infancy and in adult life, as has been recently recorded by Crohn; as well as many disorders of the intestine in which the constitutional factor is known to play an important etiologic rôle. In no other system are such morphologic variations in shape and form observed as in the intestine. These often occur to so marked a degree that it becomes quite difficult at times to determine what should be regarded as normal and what as abnormal. In fact, symptoms are seldom occasioned by such morphologic changes. Occasionally, however, disturbances are produced in the form of obstructions, and even serious inflammatory or malignant complications may finally ensue. I need only point to such disorders as chronic duodenal stasis, so-called chronic appendicitis, diverticulosis, neurogenic mucous colitis and Hirschsprung's disease, as well as other anomalies of the colon, as a further indication of the constitutional disposition leading to the development of certain intestinal disorders.

Cancer of the Digestive Tract.—The occurrence of cancer of the digestive tract on the basis of an inherited susceptibility has attracted considerable interest. Of much importance in this respect are the noteworthy contributions of Maud Slye. According to these investigations, two factors are important in the production of this disease: first, inherited local susceptibility to the disease and, second, irritation of a sufficient degree and kind to the susceptible area. It has been pointed out by Slye that the conclusion obtained as the result of the study of cancer families is of doubtful value, as such occurrence may depend largely on a matter of chance. However, the appearance of such growths as glioma of the retina occurring in families cannot be regarded entirely in this light. As the evidence obtained from human beings cannot be looked on as conclusive, that afforded by animal experimentation must be considered. Accordingly, as the principles of inheritance are the same in all species of animals, Maud Slye pointed out that conclusions obtained in regard to heredity in experimental animals may be considered applicable in all respects to human beings. She was able to produce, entirely through breeding, strains of mice that did not develop tumors in twenty-five generations. The tendency to resist cancer was observed to be transmitted as a simple dominant character according to the mendelian expectation. The tendency to the susceptibility to cancer was found to be inheritable but only as a recessive character. In her studies Slye demonstrated that cancer was prevented in twenty-five generations by mating only dominant noncancer with hybrid cancer carriers over successive generations; but if two of these hybrids were mated, cancer was noted in the following generation.

Slye has been able to prevent cancer in some instances in animals by eliminating either the cancer susceptible factor or the irritation factor. It has also been suggested that cancer susceptibility is local and not systemic, for in mice susceptible to but a single location of cancer no degree of irritation applied to other areas in the body could induce this disease. It was also observed, on the other hand, that avoidance of irritation to the locally susceptible tissues would prevent cancer even in susceptible animals. This would suggest that an individual susceptible to cancer as a result of hereditary tendencies might avoid the onset of this disease if he will protect himself against the irritation of locally susceptible tissues. According to Wells there is evidence to indicate that the susceptibility to cancer behaves also in human beings as an inherited recessive character. There is consequently considerable evidence at hand, as has been pointed out by Warthin as well as others, although the proof has been obtained only in animals, pointing to an inherited susceptibility or constitutional predisposition to cancer in human beings, especially in certain family groups and generations. Slye is convinced that an absence of an inherited susceptibility to cancer is an important observation concerning this disease, since it indicates that large numbers of individuals are wholly exempt and that cancer may be eliminated by means of proper genetic methods.

CONCLUSION

I have attempted to emphasize the importance of a better understanding of the human constitution in its relation to diseases of the gastro-intestinal tract. In this highly interesting study, not only must inherited (genetic) factors be considered, but also environmental influences as well as a means of determining and interpreting clinical phenomena. The period is fast being approached in this country, thanks to so able a

worker as George Draper, in which this branch of medicine is rapidly gaining the recognition it deserves. Much has been accomplished, much more still remains, not only in more clearly determining the significance of these constitutional inadequacies but also in establishing more normal relations. The task is fraught with great difficulties, but in the words of Draper, "it is a fascinating and profitable one and to it should be brought the best thought, which many minds must provide."

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INFLUENCE OF EMOTIONAL SHOCK ON THE GASTRO-INTESTINAL TRACT IN THE PSYCHONEUROSES *

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The course of human endeavor, or life, as one of the most important elements in the evolution of the species, is marked by psychologic changes which are often more obvious than the physical. Whether these have become more frequent or whether attention has been more closely focused on them is not so important as the fact that modern research is becoming more concerned with their influences. The rapidly varying activities of modern life from business and social points of view have modified environmental states in their spiritual, social, economic and domestic, as well as sensual, aspects. Mental reactions have multipled, fixations and habit patterns have been altered, and complexes, repressions and other psychopathic effects correspondingly developed or elaborated. These are sometimes so marked and severe as to occasion a response which is comparable to shock or trauma from other causes.

The influence of fright as well as anxiety, fatigue, anger, pain or unusual excitement on the digestive tract and its associated systems is not new but its importance has not been given the attention it merits, especially from the neuropsychiatric point of view.

Long before the influence of psychic stimuli on the secretions as well as the motility of the gastro-intestinal tract, the salivary activity through the sight or smell of food has been recognized. That the activity was not entirely the result of hunger and conditioned on the stimulating influence of food is evidenced by the amusing incident of the little boy who stopped the Marine Band during a concert in Washington by the sucking of a lemon as he passed by.

Some time ago Dobreff [1] stated that:

> Daily observation teaches us that every profound sensation, especially the emotions, gives rise to distinct alterations in our somatic life—changes in the pulse and respiratory rate as well as that of blood pressure as generally within the domain of the vasomotor reflex. In the same category belongs the influence of emotion upon the glandular system. A light or copious flow of tears, subject to individual variations, as a result of pain or grief. Occasionally in frank anxiety states involuntary urination occurs.

In 1852, Bidder and Schmidt demonstrated the influence of craving food, withheld in hungry individuals, as sufficient to release gastric secretion; this was later confirmed by Richert in 1878.

The depressive effects of strong emotional stimuli on the gastric secretion was first accurately studied by Bickel.[2] He was able to observe in gastric fistulas in dogs a profound inhibitory effect on the secretory function of the gastric mucous membrane through anger experiments in animals selected because of their excitability. Controls were carefully carried out on esophagotomized dogs and observations made by means of a gastric fistula. Not only the quantity but the quality of the secretion was influenced.

Later, by investigations of Pewsner, the influence of psychic stimuli on the external secretion of the pancreas was shown. Oechsler [3] confirmed these observations and was the first to demonstrate the reaction of the emotions on the flow of bile as well as the inhibitory influence on the digestive glands. It was conclusively shown that this influence was on glandular activity and not merely inhibited outflow, since with the removal of the inhibitory effect no increase in secretory flow took place.

The suppression of urine under high emotional states, followed by a large output of urine of low specific gravity, is a common observation.

Motor effects have been observed, such as spastic contractions of involuntary muscles, especially made evident through gastro-intestinal radiography through the intermediation of insoluble opaque precipitates. Contraction of the circular muscle of the stomach thus may cause the well known "hour glass" deformity to be portrayed, without revealing organic constriction when explored by operation.

The comment of Alvarez [4] is interesting in view of the apparent conflict in effects:

> At first thought one would expect an increase in the irritability of the digestive tract to result in diarrhea, whereas actually constipation is the rule. A possible explanation is that the sphincters at the two ends of the stomach and of the colon, which I have reason to believe are normally more sensitive than the rest of the tract, become so irritable and tonic that they cramp down and interfere with the progress of food and its residues. This explanation is supported by the fact that there are a number of nervous, unduly irritable women who suffer from spasm of every sphincter in the body. They have perhaps pharyngospasm with globus; slight spasm at the cardia; spasm at the pylorus, causing delay in the emptying of the stomach; spasm at the ileocecal sphincter causing delay in the emptying of the ileum and sometimes a sort of hunger pain; spasm of the anal sphincters causing constipation, and spasm of the muscles about the vulva causing dyspareunia and irritability of the bladder. Constipation is commonly of nervous origin; it is often associated with an extreme tonicity of the anal sphincters, and this I believe is part of the general tenseness of the muscles which is seen in nervous, hypersensitive persons.

One may therefore summarize the influences of emotional stimuli as operative through the inhibition of secretory activity of the glands of the stomach, duodenum, pancreas and liver; the motor activity as affecting the conformation and relationship of the viscera, as revealed by roentgenographic study; and secondarily, or consequently, modifying the chyme, biliary and pancreatic outflow.

Most experiments in man were carried on through condition reflexes associated with the sight, smell or taste of food. That other stimuli, however, may oper-

* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Dobreff: Experimenteller Beitrag über den Einfluss von Affekten in Muskelarbeit auf die Urinausscheidung.

2. Bickel, A.: Experimentelle Untersuchungen über die Magensaftsekretion beim Menchen, Verhandl. des xxii Kongr. f. inn. Med., München, 1906.

3. Oechsler: Ueber den Einfluss der psychischen Erregung auf die Sekretion der Galle und des Pancreas, Internat. Beitr. z. Pathol. u. Therapie der Ernahrungsstörungen 5, number 1, 1913.

4. Alvarez, W. C.: Ways in Which Emotion Can Effect Digestive Tract, J. A. M. A. 92:1232 (April 13) 1929.

ate effectively is evident from the observation of Sinelnikoff,[5] who has described an interesting case of a woman in whom an artificial esophagus was made from a loop of small bowel transplanted under the skin of the chest. When activity was quite apparent in the loop, harsh words immediately stopped the movements for several minutes.

Alvarez [6] cites an instance of a young man who had been much disturbed over a political row in his lodge and when submitted to fluoroscopic examination it was found that every bit of barium meal eaten six hours before still remained in the stomach. With the restoration of calm and the settling of the difficulties, the stomach emptied promptly.

Cannon [6] described a woman who, at the first examination, appeared to have no gastric juices but who on subsequent tests was found to have plenty. It was then learned that on the night preceding the making of the first analysis she had been kept awake and badly upset by the conduct of her husband, who had chosen the occasion to get uproariously drunk.

It seems unnecessary to elaborate further on the influence of emotion on the motor phenomena of the gastro-intestinal tract at this time in view of the numerous experiments in man and animals by such observers as Cannon, Brillat, Savarin, Haudek, Stigler, Sailer, Gilmer, Biernaski, Bickel, Ivy, Cohnheim and Dryfus.

The influence on the secretory structures varies in different individuals, at times being more manifest in the salivary or gastric secretions than in the pancreatic or intestinal, and vice versa. It is probable that in the majority of susceptible psychoneurotic subjects the alteration in the chyme as well as that of the pancreatic juice is chiefly responsible for the flatulence and gaseous distention which is so frequently a cause for complaint in these patients. Not only is the secretion of the pancreas inhibited and the volume consequently diminished, but its enzymotic content is also diminished or altered. That the flow of bile through the common bile duct exerts an exciting influence on the outlet of the duct of Wirsung with a stimulating effect on the flow of pancreatic juice is generally conceded; indeed, with all the factors that may influence the pancreatic secretion in amount and constituents growing out of the effect of the emotions it would indeed be surprising if complaints from the gastro-intestinal tract were not forthcoming.

The normal metabolism of fats is most interesting, but the alteration of this process as a result of inhibited secretory activity—especially of the pancreatic juice and the bile—becomes particularly so, and probably is the most important factor in the development of the distressing intestinal disturbances so frequently accompanying functional nervous states.

It is not opportune, within the allotted limits, to do more than to indicate some of the changes from one point of view.

It is a well known physiologic fact that both the pancreatic juice and the bile are necessary for the intestinal digestion of fat. It has been determined that, in the absence of the pancreatic juice alone, the diminution in the absorption of fat is from 50 to 60 per cent. If bile is also absent, the diminution reaches from 80 to 90 per cent.

The faulty metabolism of fats often results in the overproduction of fatty acids—possibly in part due to limited saponification as well as to lipase deficiency; this is responsible for the intestinal irritative reaction as a result of the change from the normal alkalinity, as well as the familiar manifestations of acidosis frequently encountered. The chief offenders in the fatty acid group—as pointed out by von Noorden—are the isomers of butyric and isobutyric acids.

It is quite probable that such disturbance plays an important part in the development of ulcer, especially if the way has been prepared by an alteration of the chyme because of the gastric glandular inhibition or suppression proceeding from the same general influence.

Similar distressing symptoms may be attributed to the lessened amylolytic and proteolytic enzyme content of the pancreatic fluid.

It would seem desirable that more attention be given to functional alterations which have been provoked in psychoneurotic individuals through emotional susceptibility to shock or psychic trauma in evaluating the cause of the consequent subjective complaints. It should be especially emphasized that such susceptible individuals should be submitted to careful observation from the psychologic as well as from physical aspects and that therapeutic measures both psychologic and medicinal, directed toward their correction, should take precedence over operative procedures. There is good reason to suspect that many patients with anxiety neurosis with depressed or maladjusted emotional conflicts have been deprived of appendixes and gallbladders without pathologic changes, or submitted to gastro-enterostomy and other plastic operations when the real issue was not with an organic disease, and the subjective complaints for which they were undertaken still obtain. The treatment, in general, indicated in cases in which psychic, traumatic or emotional cause can with fair reason be suspected if not definitely determined may be approached from two angles. One is distinctly psychologic, having as its purpose the effecting of a readjustment, especially with reference to conflicts interfering with the libido in its broadest sense, on the eliminating of repressed complexes which are incompletely obliterated. The latter may often, but not necessarily, pertain to the sexual in either its broad or its narrow aspects. The other aspect of the treatment is through sedative medication without, however, clouding the consciousness; and the corrective administration of the deficient enzymes. The question of the effectiveness of enzymotic ferments when introduced into the intestinal tract, the physiologic effect of ox bile or other contributory influences should not concern one nearly so much as the fact that they do afford relief from the most obtrusive complaint, and in doing so they have the distinct advantage over surgical procedures in that if they fail in their purpose they may be discontinued and the organs have in no way suffered from their having been used.

Indeed, the foregoing may be regarded as a plea for the more careful study of gastro-intestinal disturbances as occurring in the highly neurotic and, especially, anxiety neurotic patients; and to avoid for them what appears to be all too frequent and ineffectual surgical attempt at relief. The large percentage of so-called neurotic or psychoneurotic patients who have been deprived of their appendixes and gallbladders without experiencing the relief contemplated is quite familiar to most neurologic clinicians.

The following two cases present the general clinical picture: one submitted to operation without relief; the

5. Sinelnikoff, E. J.: Ueber Hungerbewegungen eines Dünndarmabschnitts beim Menschen, Arch. f. d. ges. Physiol. **215**: 427-430, 1927.
6. Cannon, W. B.: Body Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1915, footnote 69.

second almost entirely relieved by antispasmodic and intestinal medication:

CASE 1.—MRS. L. M. V., a well developed Southern woman of 38, had an irrelevant antecedent and family history; the former included typhoid at 15, several attacks of malaria, and influenzal pneumonia in 1918. Menstruation was established at 11; there was no difficulty. The patient was married at 15. She had one normal birth. She was widowed for twelve years and remarried. There was domestic difficulty in both marriages. Many repressed emotional complexes were admitted by her.

She consulted a physician because of stomach (?) trouble of fifteen or twenty years' standing. Her chief complaints were pain and distress about an hour after eating. There was some tense pulling in the occiput and the neck. Her appetite was good but it was limited because of fear. There was gaseous distention and constipation.

The patient submitted to operation with the diagnosis of gallbladder and appendicular disease. The operation revealed a normal stomach, gallbladder and a long narrow appendix, free from evidence of disease, some plastic veil-like adhesions, and a rather large but patent pylorus. The left ovary was removed because of old pathologic changes and adhesions.

Recovery from the operation was prompt and with the establishment of convalescence a recurrence of symptoms appeared. The worry, repressed complexes and defense reactions were quite evident.

Much relief was afforded by the administration of strontium bromide before meals and the use of ox gall, pancreatin and heavy magnesium oxide an hour after meals.

A later diagnosis of duodenal ulcer was based on roentgenograms and persistence of symptoms. Rest and a dietary plan afforded some relief. The marked improvement at the present time was antedated by domestic adjustments leading to the abolition of disturbing anxious repressions. This readjustment in domestic life has now resulted in complete recovery, which has continued without recurrence for about two years.

CASE 2.—A woman, aged 40, well nourished, was observed in 1928 because of pain and abdominal distress, with flatulence. Her previous illnesses include only mumps of the exanthems, pneumonia at 23, and influenza in 1918 which was quite severe. She had had an appendectomy with an abscessed ovary at operation and a tonsillectomy nine years before. The menstrual history was negative except that there had been no catamenia since the operation.

Distress began following operation. Considerable worry during this period culminated in a shock, the result of a fatal accident to a son. Marked depression with tenseness and anxiety persisted. Her appetite failed; distress increased with the abdominal distention. The bowels were constipated. Her sleep was much disturbed.

Physical examination did not reveal any organic evidence. There were no definite points of pain; there was considerable flatulence. The blood pressure was 126 systolic and 80 diastolic; hemoglobin was 80 per cent. There was moderate acidosis.

Relief was prompt under saline aperient and antispasmodic medication combined with the pancreatic enzymes.

CONCLUSION

It is earnestly hoped that this discussion of the subject may not be viewed as an attempt to deprecate the judgment on which surgical pathologic cases definitely rest, but rather to emphasize the fact that many psychoneurotic disturbances of the glandular structures associated with the visceral organs in question as to justify more careful study from the psychoneurotic aspect.

325 Mack Block.

ABSTRACT OF DISCUSSION

DR. W. H. RILEY, Battle Creek, Mich.: When a patient comes to a physician complaining of pain or distress or disorder of any organ or group of organs, the physician has immediately presented to him a problem to determine whether the cause of the trouble is in the organ itself or in one of the controls of the organ or in both. This is an important point for the physician to decide but unfortunately one that he does not always consider. There are at least three great controls of the function of the body: first, the psychic including the emotional part of the mind; second, sensorimotor or reflexes; third, the internal secretions. The function of any organ or any group of organs may be disturbed or changed by insufficient or imperfect action of one or more of these controls. In emotional shock one of these controls is disturbed. The work of Pavlov, Cannon, Boldyreff and others has shown that the emotions have a wonderful influence in changing the function of the digestive system. Pleasant and agreeable emotional states favor the function of digestion and absorption, while unpleasant emotional states disturb the digestion. The emotional shock or strain to which the patient has been subjected is quite often readily discoverable. In other cases it is more difficult to discover and the physician must quiz the patient quite at length and at different times before the emotional strain or shock which may be responsible for his present ailment can be discovered. The patient often does not make any connection between the trouble from which he is suffering and the emotional strain or shock which may be the cause of it. As the result of these emotional strains and shocks, the most important symptoms that the patient presents in the digestive system, according to my own experience, are anorexia; nausea, vomiting, distress in the stomach and abdomen which usually occurs soon after eating; gaseous distention; hyperacidity of the stomach; heartburn; constipation; diarrhea, and attacks of mucous colitis. While the emotional strain or shock may be the primary cause of these symptoms, it is well for us to keep in mind that as the result of this emotional shock the nervous system has become sensitized and the nervous reactions, the results of taking food or digesting food, may be excessive, the result of a hypersensitive condition on the part of the nervous system, and not always a mental reaction on the part of the patient. In a study of these cases it is important that the physician approach his problem unbiased and with a broad view of the problem.

DR. MEYER SOLOMON, Chicago: What applies to the gastro-intestinal tract applies to all the other tracts and therefore it brings up the general question of psychogenic influences on the bodily organs. I believe that the various physical complaints are dependent approximately on the following factors: The first group comprises hypochondriacal ideas, practically delusional states, in which there are no disturbances of any kind; the patient feels nothing unusual but is complaining. Second are attention sensations. All have heard about so-called attention pains, which may be disputed; but there are attention sensations, in other words, the complaint of feeling various sensations in different parts of the body, though physiologically normal, which the individual would not feel or complain of if he did not pay particular attention to that part of the body. The third group includes bodily manifestations due to autosuggestive activity on the part of the patient. These are really self-produced symptoms of an ideational nature, and the specific state is so-called hysteria, which has well been called autosuggestive neuromimesis, production of symptoms simulating organic neural lesions but of an autosuggestive nature. This affects particularly the voluntary system. The fourth group, which is really specifically the problem discussed in this paper, is the effect of emotions on bodily functions in which there may be an upheaval in any part of the gastro-intestinal tract or any other tract or system, voluntary and involuntary, due to some emotional upset. I think that often neurologists make an error in failing to differentiate the first three groups from the fourth group. This brings up, then, the fact that gastro-intestinal disturbances of an emotional nature are one part of the picture of psychogenic influences on the gastro-intestinal tract and that one has to consider the role of condition reflexes, the constitutional physiologic make-up of the particular person, and the particular weak links in the physiologic chain of each particular patient.

DR. A. B. OLSEN, Battle Creek, Mich.: I would like to emphasize the necessity of a most thorough physical examination in all these cases. A woman, aged 22, presented the typical subjective symptoms of an acute appendicitis with exquisite tenderness in the region of McBurney's point. But she had had both cholecystectomy and appendectomy several years previously, and one or two other operations. Careful tests and study

revealed a case of major hysteria, from which she made a good recovery.

DR. A. B. YUDELSON, Chicago: The importance of differential diagnosis between actual psychosis or psychic states and organic disease must be stressed. A careful study should determine whether the patient is of a type of mentality that is apt to misinterpret peripheral irritation in such a way as to simulate organic disease. As a general proposition, when the patient's complaints are symptomatic of angina pectoris, gastric disturbances or visceral upsets, if the patient is not frankly psychotic but is able to concentrate on the focal conditions, that patient is going to give an accurate description of angina pectoris and will stick to that description. Similarly, if the patient is not unduly emotional and concentrates on the gastric condition which Dr. Solomon called "hypochondriacal states," the symptoms will simulate gastric ulcer and typical gastric phenomena. It is precisely the same in visceral disturbances. All are familiar with the visceral type of migraine. The patients have periodic visceral pains which simulate gallbladder pain, accompanied by diarrhea, constipation or variable intestinal disturbances. These patients are not necessarily psychotic. On the other hand, if an obvious psychosis is discernible, it is necessary to study the psychotic state and the syndromes suggestive of organic disease; for patients who are frankly psychotic are not systematic nor methodical in the description of their organic symptoms. But it should not be forgotten that the entire group of these symptoms in either emotional anxiety or mildly psychic states are focalized on the so-called vegetative nervous system. With the distribution of the vagi from the epiglottis down to the rectal mucosa, in the event of vasomotor sympathetic upsets, everything is possible in the way of symptoms: tachycardia, which simulates thyroidism; gastric irritations, angina pectoris, or visceral states. The important point is to study not only the emotional instability but especially the vasomotor sympathetic conditions, because it is on the distribution of the autonomic nervous system that the string of symptoms is strung along. The symptomatology may be focalized on the gullet, the heart, the stomach, the lungs and the viscera.

DR. IRVING J. SANDS, Brooklyn: It is a matter of common observation that psychic influences have a tremendous effect on the body and bodily functions, particularly on the gastro-intestinal tract; they are expressed anatomically along the vegetative nervous system either through stimulation or depression of the parasympathetic nervous system and occasionally of the sympathetic nervous system. Most of the signs and symptoms expressed by the patient and found on examination may be put under one or the other heading. They are due to a vegetative imbalance in the greatest majority of instances.

Furthermore, the action of the endocrines, particularly the thyroid and the suprarenals, has a tremendous influence in this particular state. All are familiar with the work of Ziegler and Levine (*Am. J. M. Sc.* **169**:68 [Jan.] 1925), who found basal metabolic increase in most of the psychoneurotic patients at a time when their conflict was touched on. Henry (*J. Nerv. & Ment. Dis.* **70**:598 [Dec.] 1929) at Bloomingdale only recently reported a series of cases showing the tremendous effect of emotions in psychotic patients. In cases of manic-depressive insanity, the manic phase, he found an increase in metabolic rate. In those psychotic reactions associated with depressions he found a diminution in the basal metabolic rate. In these cases, of course, the action at first is reversible. Remove the psychic trauma, and the physiologic expression will return to normal. However, a certain stage is reached where there is definite structural change which is liable to occur. There is no doubt that a continuous pounding of the vagus, say, will cause definite anatomic changes in the stomach and duodenum. And all know clinically, and most textbooks mention this, that emotions have a tremendous influence in the causation of duodenal ulcers or hyperthyroidism, as the result of the influence of emotion on the endocrines and the vegetative nervous system. There is no doubt that the profession at large is now beginning to realize the influence of the interaction of emotions and physical factors in the body. Really, they are different phases of one part. There is no such thing as psychic and physical factors. They are parts of the same thing. Every act of the body is associated with some emotional reaction. Every emotion must express itself anatomically along some nervous pattern, particularly along the vegetative nervous system.

DR. G. A. MOLEEN, Denver: This subject is so large that I tried to focus it on just the one phase—the altered secretion which resulted in an altered chemistry of the gastro-intestinal tract, and that this could and does account for a great majority of the disturbances which one finds in psychoneurotic individuals; and also to lament on the frequency with which operations are undertaken for relief of this apparent glandular disturbance or the functional disturbance in the gastro-intestinal tract, without success. I think the incidence of this is apparent. In most communities one recognizes that the orthodox Jew is probably the most frequent neurotic patron of the clinic. At least, that has been my experience. It is a sad commentary that one finds upward of 90 per cent of the neurotic Jewish patrons without appendixes, their gallbladders threatened, and the symptoms still persisting. The real trouble seems to be a result of emotional shock with abnormal changes in the digestive function, and the production of fatty acids. These, as long ago as 1902, von Noorden pointed out as the most disturbing elements in the acid intoxications. I refer to the isomers of butyric acid. This leads to many possibilities. It is not concerned so much with the thyroid or the suprarenal disturbances as the shock itself might at first lead one to think. Although the shock is probably inhibitory through the vegetative system, the thyroid itself possibly does not play so much of a part as the suprarenal, and the two not a great deal so far as the glandular activity is concerned. It is mainly the influence of the glandular activity and the secondary effects leading to the ills in the gastro-intestinal tract to which I intended to direct attention, and it was also with the idea that one might correct or relieve this deficiency, brought about by emotional shock, by supplying the enzymatic deficiencies in the digestive fluids as well as to correct the psychic traumas by the removal of the effects of maladjustment.

OCULAR NEUROSES

AN IMPORTANT CAUSE OF SO-CALLED EYESTRAIN *

GEORGE S. DERBY, M.D.
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J. W. L., a teacher working for his Ph.D. degree, who consulted me last December, said that eight years previously he had strained his eyes while reading a difficult text and had not been able to use them for some time. At various periods since then the same thing had happened. The present trouble began in March, 1928, when he strained his eyes again. Since then he had not been able to use them much; print blurred, and he had had constant headache for which he took acetylsalicylic acid. He was able to keep on with his teaching, but he did a minimal amount of work with his eyes and became much depressed. For three months during the past summer he had practically not used his eyes at all. The thesis for his degree was almost finished but had been laid aside for the past year. He was much depressed at times and suffered a good deal. He had seen a large number of ophthalmologists, had had many prescriptions for glasses, and was no better.

Examination showed a moderate amount of mixed astigmatism in each eye for which the patient was wearing the correct glasses. He had no muscular anomaly and the examination showed no ocular abnormality. He had had extensive and thorough physical examinations, including a lumbar puncture; his tonsils had been taken out and his sinuses drained, all to no

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avail. After a thorough examination of his eyes and several interviews, it was evident that he was suffering from a neurosis. The situation was discussed with him at length and he was sent back home to use his eyes normally, and to take up and finish his thesis. He was told that his eyes would continue to bother him for a time, but that this would gradually cease and he would be as well as ever. Before leaving he said "Doctor, why has no one of the many oculists I have seen ever explained all this to me before? If I know that I am not damaging my eyes I can stand any amount of pain and discomfort and I will be glad to carry out your instructions." A recent letter from him tells me that he is working normally and with comfort.

This case is reported at length because it is a good example of a condition that is seen frequently, a common type and one that is ordinarily handled by ophthalmologists with less skill and judgment than should be the case. Ocular neuroses are constantly with us and yet we read little about them in the literature. The last communication before this section, and perhaps the only one, was an excellent paper presented six years ago by Dr. Lawrence Lunt, who is himself a neurologist. In fact, from my observation I firmly believe that ophthalmologists produce more neuroses than they cure. It is for this reason that I venture to bring this subject up again.

L. W. P., a healthy man, aged 48, consulted a physician in Providence, R. I., because of some discomfort in his eyes. He had used reading glasses for some years but had never had any trouble. Distance glasses were prescribed; his eyes became worse, and he was examined a number of times by the same man and the glasses were changed. As his symptoms were not relieved he consulted in succession three other ophthalmologists, all of whom changed his glasses and one took out his tonsils. He was also examined by a neurologist.

When the patient consulted me he was suffering a good deal from aching eyes; he had given up smoking, card playing, the movies, driving a car and reading. He had to lie down every afternoon to rest his eyes and frequently was kept awake at night by the pain. When I first saw him he had 6/5 vision in each eye without glasses, a hypermetropia of 1 diopter, accommodation of 2 diopters and normal muscle balance. The rest of the examination was negative. It was evidently a neurotic state and it was carefully explained to him. His distance glasses were taken away and he was told to use his eyes and resume all his former activities. In five weeks he came back much better and has been in twice since for reassurance. Looking back on his trouble he felt that his serious symptoms began when he was ordered distance glasses. They "pulled" his eyes and then every one tried to cure him by changing his glasses. A sensitive person was made hypersensitive by the treatment he received. He is now living a normal life and has but little trouble.

The use of the eyes should be, and usually is, a subconscious function. When, for one reason or another, it enters the consciousness and the patient comes to us to know the reason why, we face a great responsibility, for on the way we size up the situation, on the way we interpret and explain the psychologic factor that is frequently present, may depend the comfort, efficiency and happiness of the individual. Too often we do not take this psychologic factor into account. Most of the refraction that I see is distinctly good; not infrequently it comes from the optometrist. I have no criticism to make of the average refraction that is being done by educated men in this country today, but too often the neurotic patient is dismissed or got rid of with a minor change in his prescription, when what he really needs is a careful analysis of his condition and an explanation of how his various ocular aches and pains should be interpreted and treated. Far too many glasses are changed. Any one can find a slight difference in the strength of the lens or of the axis in any patient, however well the refraction has been done, and it is a fact that most persons can wear quite a number of different combinations of lenses with equal comfort, always provided the difference is not too great.

I wish we could banish the term eyestrain from our vocabulary. If the general public could learn that eyes are seldom strained, this would be a much happier world to live in. The fact of the matter is that the eye is provided with a large factor of safety and that healthy eyes do not become diseased even by excessive use. During the course of the year I see a large number of young men from various professional schools who are carrying heavy programs of work. Frequently the system rebels and the trouble may center in the eyes. In practically all cases they have been burning the candle at both ends, neglecting regular meals, sufficient sleep, fresh air and exercise. To do hard eye work one must keep the body fit. A discussion with them of their habits of life and suggestions for improvement is of far more value than simply writing a prescription for a pair of glasses; yet that is what the average ophthalmologist is likely to do. Occasionally their glasses need changing or, having none, they need a pair; that is a help but not the main thing.

M. G., a college student, consulted me five years ago. His chief complaint was pain over the eyes if he read for even a minute. He was of a high strung disposition and had been the usual rounds and received various prescriptions. He was within a month of graduation, and for twenty months he had done no reading but had had all his subjects read to him. He did not consider himself nervous. After a careful examination, the diagnosis of a neurosis was made; the situation was carefully explained, and in a month he was cured. In eighteen months he came back with a slight recurrence of the trouble and the same means were satisfactorily employed. Six months later he came in again for reassurance. For the past five years he has had full use of his eyes. In the meantime, he has published one book, has several others on the way, and incidentally works half-time in the real estate business helping his father.

These are examples of a fairly large group of cases. I regard two of them as of a severe type, but they would not have been had proper treatment been given when the symptoms first began to develop. Yet these patients were stable enough nervously, so that when the situation was explained they were able with a little assistance to effect their own cures. If we recognize these tendencies earlier, a neurosis would never develop.

Now what is at the bottom of the trouble in most instances? I am not a trained psychologist and cannot explain the inner workings of the mind, but there is one thing I should like to say here: that in at least 95 per cent of these cases a trained psychologist is not needed for either the diagnosis or the treatment. Rarely is it necessary to call one in. What we need is a knowledge of human nature, sympathy, a willingness to spend some time in studying the case, and sound common sense. I believe that fear is the commonest factor at

the bottom of the difficulty; often there is some one blind or with very poor eyes in the family; this condition is impressed on the patient's mind and he fears that his own eyes are becoming affected. It is surprising how many patients will not give the clue to their mental condition until they are actually leaving the office. Then, reassured, they will frequently reveal that fear or worry has brought them. Frequently the fear is of that awful bugbear eyestrain, caused by some ocular pain or discomfort; or they fear that they are injuring their eyes permanently, that they cannot continue in their occupations, and perhaps cannot earn their living. Eyestrain is a terrible and serious bugbear to the public; would that the word had never been coined. Most of these neuroses occur in sensitive and highly organized people. Dr. Lunt says: "A universal factor which can be taken for granted [is that] the sensitive person is potentially a psychoneurotic, but he does not become such unless through clumsy management he develops hypersensitiveness." And we are often the people who supply that clumsy management.

A further and less common group is formed by those who use their eyes as an avenue of escape from unpleasant situations. These patients are not infrequently seen in the school and college group and sometimes in adult life. One such patient whom I have followed for thirteen years, since he was 7, is now 20 and ready to be discharged. He has a moderate myopia and astigmatism which has progressed but little, and he occasionally (being quite a pronounced blond) has rather red lid edges and moderate conjunctival injection. I feel sure that this patient has honestly thought many times that he had sensitive and delicate eyes and should be careful in their use; the fact of the matter is, however, that he is a slow student and the eyes have been the most convenient means of escape. It has been possible, however, by careful management of the patient and his parents to ease him along through the years of school in spite of the numerous times he has come in with his eyes in "desperate" condition. One winter while at school in California the patient obtained several months' vacation on account of his eyes, but all the rest of the time he has been kept at work, and now he has graduated from school and is in the real estate business, which he thoroughly enjoys. His eyes now give him no trouble.

How are we going to recognize these cases and how treat them? Each man has his own methods. To my mind the careful history is most important. I believe that many cases can be recognized from the history alone, and incidentally I feel that a careful history helps in almost every ophthalmologic case. In many patients the diagnosis almost makes itself from the history of distress in using the eyes often relieved by a change of glasses, a long period of ocular disorder, many pairs of glasses, a person of the sensitive type often believing that somewhere in the world lies the perfect pair of glasses and sometimes the two will meet, and also believing that almost every sort of bodily disability may be caused by eyestrain.

One day some years ago I met on the street a friend of mine, an intelligent man of about 50, a leader in his profession, high strung and overworked, who at times suffers from occasional functional paralysis of an arm. He said, "I am going to see Dr. So and So, my arm trouble has recurred. He will change my glasses and that always fixes me up." He thoroughly believed that eyestrain was the cause and I fear that the very capable ophthalmologist who had charge of his eyes had never told him that it wasn't.

A careful history and a thorough examination are essential. We can always find something wrong in every case, but the question is, Does the particular abnormality in this case account for the patient's troubles?

A diagnosis of neurosis is not hard to arrive at, but once it has been made one should be prepared to spend some time on the patient or, if not, to send the patient to some one else who will. One must gain the patient's confidence or no results will be obtained; a hasty, superficial examination will not inspire confidence. Once one is sure of the diagnosis, I think that the best procedure is to put all the cards on the table, tell the patient frankly what is the matter, and explain to the best of one's ability and as simply as possible how the trouble developed. Pain, as is well known, can become a habit; and, as we all use our eyes constantly for one thing or another during our waking hours, the habit pain repeats itself frequently. I often like to quote the well known instance of the man who has suffered much pain from a crushed foot and in whom the pain in the foot persists for some time after amputation. Most people can grasp the fact that the use of the eyes should be a subconscious function, that it is only when we are conscious of them that we suffer from discomfort, and that the only way to get rid of this discomfort is to get the eyes back to the subconscious level. To do this depends largely on the patient's own effort. He should use the eyes, not rest them, and disregard discomfort; when the eyes feel especially uncomfortable they should be used. Such discipline will almost always effect a cure if the patient has confidence in his physician and has what is vulgarly termed "guts." I freely confess that in earlier days I supported these measures sometimes with prism exercises, sometimes with graduated reading (Dyer's method). Now I rarely use either but depend solely on the mental effect of a careful explanation of the trouble. It is far more dangerous to tell a patient to rest a healthy pair of eyes than to use them. Many a sensitive patient has been made hypersensitive by the prescription of rest and dark glasses; the potential psychoneurotic becomes an actual one. Our aim in this, as in other fields of medicine, should be prevention, and we can nip many a beginning neurosis in the bud.

Mrs. A. H. L., a rather anemic and sensitive woman, aged 39, one month previously had had a conjunctivitis and since then her eyes had not been right. She had been treated by her family physician, who prescribed mild silver protein and told her not to use her eyes for a month. One week before, as her eyes had been troubling her, she had gone to an optometrist, who prescribed reading glasses. The optometrist told her that she had a cramp in the muscles of her eyes, gave her dark glasses, told her that she should not use her eyes, and advised her to consult an osteopath.

The patient had 6/5 vision in each eye, 0.5 diopter of hypermetropia and 0.25 of astigmatism in the right eye, and 1 diopter of hypermetropia in the left eye. She had satisfactory reading glasses. Her muscle balance was normal. Accommodation was normal for her age. The rest of the examination was negative. Here the stage was set for a neurosis, which was easily prevented by taking away the dark glasses and advising the patient to return to the normal use of her eyes. She has not had any further trouble.

There is entirely too much changing of lenses a fraction of a diopter or a few degrees of axis among

us, and naturally so, because it is the path of least resistance. I believe that we ophthalmologists should take more pride in not prescribing glasses and in changing a minimum of glasses than in the number of prescriptions we issue.

5 Bay State Road.

ABSTRACT OF DISCUSSION

Dr. W. H. Wilmer, Baltimore: In the practice of ophthalmology there are many cases with a psychic element. This may vary in degree from a hypersensitivity to a ¼ diopter cylinder to that of a manic-depressive condition. I fully agree with Dr. Derby's assignment of causes of ocular neuroses. I would add two others—a desire for attention and sympathy, and the more serious state of pathologic repression. In the case of the former the mental therapy should include an injudicious family. I dread to hear an oversolicitous mother say to her nervous child: "Now, dear, don't forget to tell the doctor all about your eyes; the dancing spots, the fading print, the pain in your eyes." The psychoneurotic states arising from some repression dating from childhood are the most fascinating, and when the cause is brought into the realm of the conscious mind, fear removed, and good advice given about the use of the eyes, the results are most satisfactory.

The forms that ocular neuroses take are unlimited; but in my experience the persons suffering from terrifying muscae, intolerable photophobia, and the obsession of muscular imbalance have been among the most intractable. When the patient's mind dwells on the difficulty of focusing the eyes, the state is frequently one of an aggravated psychosis; and there is often hypersensitiveness to the slightest change in the axis of even a weak cylinder. There is a history of much changing of lenses, followed by operative procedure. In patients who exhibit a marked psychosis, operations on the eye muscles may be followed by disastrous results.

I heartily agree with Dr. Derby's psychotherapeutic suggestions, but I still have to use, occasionally, prism exercises and a graduated reading task. In certain cases, after a careful examination, I have made my advice conditional on the patient's first reading half an hour in the reception room.

Dr. Derby has presented admirably the fundamentals of mental therapy in ocular neuroses.

Dr. Edward Jackson, Denver: In the last decade three Bowman lectures by Mr. Treacher Collins, Sir John Parsons and Prof. Elliott Smith have dealt with the evolution of vision and the eye. Smith, teacher of anatomy, both human and comparative, points out that the great mass of the human cerebral cortex developed with the exact vision of the macula, the increased size of the optic nerve, the new coordination of visual with other sensations, that made vision the basis of our exact perceptions and definite memories. In the light of such an evolution it is not hard to understand why disturbances of vision should have such an influence on mental processes—how so-called eyestrain should be so nearly related to neuroses that it is not easy to discriminate between them. The practical point is that the same patient may be suffering from both "eyestrain" and neurosis; and a remedy directed to one will not give relief from both, or even complete relief from either. When errors of refraction and accommodation have been corrected as accurately as can be done, it may still be necessary to go into a larger field; to study and reform that patient's whole manner of living before it is possible to give him complete relief. For a patient whose attention has become completely fixed on his eyes as the cause of his trouble, the most complete relief of nerve strain from use of vision may be the most direct path possible to his confidence and cooperation, which are absolutely essential to the relief of his neurosis. The testing of the refraction may be held merely to be a preliminary to the main treatment, but as a preliminary it is often essential.

Dr. Walter B. Lancaster, Boston: The treatment first is prophylactic. I regard every patient as apprehensive. I do not wait for them to express fear and ask for encouragement. I assume that they want and need encouragement. If patients are approached in that way, the development of many of these neuroses will be prevented. My method of dealing with the moderate case is not usually to "lay the cards on the table." That cannot always be done without exciting antagonism, which is absolutely disastrous. Tell the patient that his pains and aches are real and not imaginary but that their significance is entirely different from what he imagines. They are not a sign of some serious disease of the eyes such as might lead to blindness. Tell him that he may go ahead and use his eyes without danger of harm; in fact, the danger in his case is in not using them, for then they will develop more and more of these unimportant symptoms. He may ask how he can tell whether symptoms are important or unimportant. The answer is that he cannot; he must leave it to the physician to determine. If the physician hedges and is uncertain, he may do great harm; but if he comes out plainly and says that the symptoms are disagreeable but not serious in the sense that they will lead to damage of the eyes, he will do the patient much good. The third type, the severe neurosis, is difficult to treat. The incapacity is genuine. To tell such patients there is nothing the matter is not only futile—it is not true. One may, however, point out that there is nothing organically wrong, with the exception of some refractive error such as may be found in most good eyes; the trouble is that he cannot use them. Tell him that he must begin to learn all over again how to use his eyes; that you have examined him thoroughly and are sure there is no defect of the eyes that will prevent his eventual recovery of their use. The essential point is to convince the patient that he can do that which he feels is impossible. Telling him is not enough; it must be proved to him. Start the patient reading five minutes, or if that is too long, one minute, and increase from day to day. Tell him that he will feel discomfort and even pain, but that it will not harm his eyes, and that gradually he will find he can use them with less and less pain.

Dr. George E. de Schweinitz, Philadelphia: Dr. Derby, backed by his experience and full of the courage of his convicitions, has read a thought-arousing paper. I would feel sorry to lose the term "eyestrain." It was born in England; it has fluorished gloriously in this country, and I think it should be retained. But I heartily agree with Dr. Derby that it should be retained and used only according to its correct definition and not given a significance it should not possess. I am quite sure of the many excellent points of this paper, primarily the one which I think Dr. Derby feels is the core of his paper, and that is the general examination of these patients with so-called ocular neuroses. Dr. Derby's cases are similar to those Dr. Mitchell used in his famous promulgation fifty years ago—that these people should be in a group by themselves. One reason for Mitchell's amazing skill in handling this situation was his meticulous care in taking the clinical history. I quite agree with those who have spoken, and with Dr. Derby, that fear of blindness, fear of using the eyes, will cause pathologic changes that will handicap the patient. And now it seems there is one further most curious cause of these ocular neuroses, one that has grown up in the last few years because of the great increase in field work and the frequency with which the blind spot is mapped—that some people, when the blind spot is mapped, promptly develop an ocular neurosis. This is a curious thing but I believe it is true. I am just a little afraid that Dr. Derby, in his anxiety to bring forward this interesting group, has suggested that refraction is a minimal part of the cure. I am sure he agrees that it is an absolutely essential part of the cure.

Dr. E. V. L. Brown, Chicago: I agree with all that has been said, and if I may digress a little I will cite a pathologic case. A married woman, aged 43, came with a badly scarred right cornea. For twenty years she had been getting behind this eye and avoiding all the family sewing each week; an unmarried sister did all the work. I felt that the case called for a neurologist and sent her to Dr. Peter Bassoe, who, in turn, sent her back to me, saying that the patient had confidence in me and that I was the one to treat her. I do not remember just what I did, but in the course of a week she was doing the family sewing, and gladly.

Dr. E. N. Robertson, Concordia, Kan.: There is some justification for Dr. Derby's statement that ophthalmologists produce more ocular neuroses than they cure. In an eye journal some months ago we were advised by a noted ophthalmologist to change lenses of dissatisfied patients, even if only one fourth of a diopter; that the patients would return stating the classes were "no good," but that we should change them again and

use other treatment calculated to encourage the patient in his belief that his eyes need strengthening. Which all goes to show that each physician has his own way of handling such cases, and it may be the best way for him with a particular class of patients. It takes a real psychologist to manage each individual case properly, for, without doubt, methods should vary to some extent with each patient. However, I cannot agree that qualified ophthalmologists produce more ocular neuroses than they cure. The urge to sell glasses is so great that I question whether ophthalmologists today see the majority of refraction cases. In one small town in Kansas I know of a railroad agent, and in another a mechanic who fit glasses, not to mention the number of persons in drug and department stores who are constantly seeking to make their patrons eye conscious. It is true that the more intelligent patients seek the ophthalmologist, but they do not comprise the majority. However, it is my opinion that in most instances in which a refractive problem is solved or an ocular neurosis is successfully handled the trained ophthalmologist is the one who does it. I believe that in our section of the country, at least, the qualified ophthalmologists cure more ocular neuroses than they produce. It does require sympathy, patience and understanding to handle these cases, and the better psychologists we are the more cures we shall have. It takes time, but it also takes time to solve any other problem, and there are no more grateful patients than those who are "set right" by our efforts after they have passed through months, even years, of ocular discomfort associated with fear.

DR. WILLIAM H. CRISP, Denver: It is well to have such suggestions as Dr. Derby has brought before us. Perhaps some of us need them more than others, although I think Dr. Derby would be surprised if he could find out how large a proportion of the more careful ophthalmologists are giving considerable attention to the neurotic or psychoneurotic side of their practice. But with the advantage of such suggestions as Dr. Derby's there is some danger of overemphasis of this side of the case. It is, perhaps, well to realize that probably a large percentage of people in our modern, high-strung civilization are somewhat neurotic or psychoneurotic. Probably even a majority of physicians are more or less psychoneurotic. As regards refractive errors, it is true, as of many other things in the practice of medicine, that no physician thoroughly understands his patient's condition unless he has had a touch of the same trouble himself, just as no one knows just how any particular medicine acts on a patient unless he has taken it himself. Physicians in whom the physical life, the outdoor life, the athletic life plays an important part, and who themselves are not neurotic, may make inadequate allowance for the type of patient in whom small amounts of refractive error produce eyestrain. As regards Dr. Derby's cases, I find it difficult to believe that a man of 48 years with only 2 diopters of total accommodation and 1 diopter of hypermetropia would be better off without his distance correction. A little while back I had a myopic patient who became decidedly relieved from symptoms of eyestrain by an increase of ⅛ diopter in one of his myopic glasses, and a reduction of ⅛ diopter in the other glass, making a total difference of ¼ diopter between the two eyes. Ophthalmologists must not forget the neurotic side; they must not fail to be on the lookout for the patient who is overanxious; but they must not make the mistake of assuming that too large a percentage of patients are chiefly influenced by fear, and of forgetting the real physical basis of eyestrain.

DR. F. PARK LEWIS, Buffalo: After having made a complete correction, after having ascertained the existence of fears, after having assured the patient that there is no physical condition causing the difficulty let us be sure that there is no actual nervous condition in the life of the patient which may be sufficient to produce this result. I recall the instance of a girl, aged 16, who suffered much with her eyes without cause, but a total study of her condition developed the fact that she was living with an insane mother, alone, and that life was practically intolerable. I recall another instance of a man who is obsessed with the idea of fear. He has lost one eye and the other eye is going. His business is passing away from him. There is no doubt that the man has reason for fear. After having assured the patient that the neurosis is not based on a physical condition, one needs to study the entire condition under which the patient is living in order that the true cause of the trouble may be found.

DR. GEORGE S. DERBY, Boston: I believe most thoroughly in careful refraction, and tried to emphasize that in the paper. Of course, a great many patients come in who have been refracted many, many times, and I deprecate the way in which glasses are constantly changed; I think that often has a great deal to do with the production of a neurosis. One instance in which psychology can be used is in the extraction of one-eye cataract. Many do not believe in the extraction of a one-eye cataract if the other eye is normal, but I feel in these days of automobiles that it is important we should see on both sides, and when a cataract is ripe I believe it should be extracted. I do not believe that many of these patients will have much trouble afterward if they are handled properly. For a time they will complain of seeing double, but gradually they will learn to suppress one image and everything will come out all right. I confess that I sometimes do aid the method of laying the cards on the table by the use of prisms or by Dyer's method. They are valuable helps at times.

METAPHEN (4-NITRO-3, 5-BISACETOXY-MERCURI-2-CRESOL)

I. A COMPARATIVE STUDY OF COMMONLY USED DISINFECTANTS AND ANTISEPTICS

II. HISTOLOGIC CHANGES PRODUCED BY THE INTRAVENOUS ADMINISTRATION OF METAPHEN IN RABBITS *

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The ideal clinical disinfectant and antiseptic is still sought after by clinicians and surgeons in general. In recent years a gradual appraisal has been made of the unusual disinfecting and antiseptic properties possessed by a mercurial compound commercially called metaphen. In order to evaluate the claims made for metaphen as a germicide, more powerful than mercuric chloride when tested on cultures of *Staphylococcus aureus* and *Bacillus typhosus*,[1] the present extensive and entirely detached comparative study of commonly used disinfectants and antiseptics was undertaken.

I. A COMPARATIVE STUDY OF COMMONLY USED DISINFECTANTS AND ANTISEPTICS

Metaphen.—In 1919 Schamberg, Kolmer and Raiziss [2] discovered that the introduction of a nitro group attached to benzene in conjunction with organic compounds of mercury markedly increased the bactericidal properties of mercurial compounds. One such compound was sodium-hydroxymercuri-ortho-nitrophenolate, commercially called mercurophen. This preparation was found to possess useful local antiseptic properties and was recommended by Shivers [3] in the treatment of gonorrhea. Notwithstanding Ehrlich's [4] pronouncement against the nitro group as a useful therapeutic agent, Raiziss and Severac [1] demonstrated that it increased the affinity of mercury for pathogenic micro-organisms, especially in in vitro experiments. In theory, ten possible mono-nitro-cresol compounds could be prepared and these were investigated by

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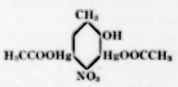
1. Raiziss, G. W., and Severac, Marie: J. Lab. & Clin. Med. **9**: 71 (Nov.) 1923.
2. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: J. Infect. Dis. **24**: 547 (June) 1919.
3. Shivers, C. H.: J. Urol. **8**: 35 (July) 1922.
4. Ehrlich, P.: Die Chemotherapie der Spirillosen, Berlin, 1910, p. 124.

Raiziss. One of these was the powerful mercurial germicide 4-nitro-2-cresol, commercially called metaphen. Its chemical name is 4-nitro-3, 5-bisacetoxymercuri-2-cresol and its structural formula is



The synthesized product is a heavy yellow powder, insoluble in water, soluble (1:500) in dilute aqueous sodium hydroxide (p_H 9.0), wherein it assumes a deep brownish red color in high concentrations and amber in low concentrations. It is soluble in 95 per cent alcohol (1:50), the color of the alcoholic solution being light amber. Metaphen contains 59.98 per cent of mercury.[5] Its toxicity was studied on white rats by Raiziss and Severac,[5] who found that it was easily tolerated in 4 mg. per kilogram doses when injected intravenously, and in 30 mg. per kilogram doses when injected intramuscularly. They noted, however, that 50 mg. per kilogram doses injected intramuscularly produced much pain. Further experiments disclosed that serum proteins did not readily combine with metaphen, a concentration of 1:200 showing no trace of precipitation, while 1:1,200 dilution of mercuric chloride gave a precipitate. The germicidal power of metaphen for *Staphylococcus aureus* was found to be more than twenty times that of mercuric chloride, a dilution of 1:20,400,000 inhibiting growth in twenty-four hours. These authors also stated that metaphen was relatively nonirritating when applied to mucous membranes or the skin and that no deleterious action was exerted on metallic instruments or rubber.

This powerfully bactericidal preparation was further studied by Peterson,[6] who made use of a modified Pilcher-Söllmann-Dreser method, which briefly consisted in determining the smallest quantity of drug that will prevent the formation of gas in yeast-sugar mixture of definite strength during a period of one hour. He found that metaphen possessed considerable inhibitory power and that its efficiency was 0.29 as compared with mercuric chloride as 1, while the efficiency of mercurochrome-220 soluble (di-sodium-di-brom-hydroxy-mercuri-fluorescein) was only from 0.0071 to 0.0083 as compared with mercuric chloride as 1.

By an improved technic for the comparison of antiseptics by yeast-sugar fermentations, Branham[7] found that metaphen possessed inhibitory action in 1:3,500 dilution, or 0.35 the inhibitory action of mercuric chloride. The efficiency of mercurochrome ceased to exert inhibition in 1:50 dilution. By this comparison metaphen proved to be 700 times more powerful than mercurochrome as an antiseptic agent.

The most recent publication by Raiziss, Severac and Moetsch[8] on metaphen as a skin disinfectant is unfortunate in that it remains inadequately controlled. Its obvious shortcomings have already been stressed by Leonard[9] and by White and Hill.[10]

There is much truth in Dobson's[11] recent statement that "nothing is more difficult than to estimate the value of an antiseptic either in the prevention or in the treatment of septic processes." Leaving aside discussion of innumerable methods expounded for proper evaluation of disinfecting or antiseptic powers, the author finds that the original Rideal-Walker method for standardization of disinfectants forms a sound basis for subsequently developed methods. The Rideal-Walker method[12] carefully concentrates on controllable factors such as standardized time of exposure of test organisms to chemical, age of culture, type of medium and its p_H, temperature during exposure of test organisms to chemical, incubation, resistance of test organisms, specification of distinct species of test organisms, proportion of culture to disinfectant, and the use of a definite phenol standard as control. The Hygienic Laboratory method[13] is a slight modification of the Rideal-Walker method and was undertaken in order to obtain higher accuracy. Its obvious drawback is the employment of only one pathogenic organism, *B. typhosus*. The inclusion of representative groups of pathogens was suggested in 1926 by Reddish,[14] who employed *B. typhosus*, *Staphylococcus aureus*, *B. diphtheriae*, *B. tuberculosis*, the pneumococcus and *Streptococcus hemolyticus*. By eliminating other objectionable features of the original Rideal-Walker method, Reddish[15] finally produced a simple test for determination of the phenol coefficient which gives consistent results with a minimum amount of time and material. This method now stands approved by the American Public Health Association.

Phenol Coefficient Test.—The test is conducted according to Reddish's[16] formula, except that the dilutions of phenol are adjusted according to the resistance of the various test organisms employed. Usually ten dilutions of the disinfectant are used in a series, two of which are reserved for phenol controls. At intervals of thirty seconds, 0.5 cc. of the eighteen hour culture is run into 5 cc. of each dilution from a 5 cc. pipet. Extreme care is taken not to contaminate the sides of the tube with the culture or to produce bubbles on the surface of the disinfectant. Mixture of the culture and the disinfectant is accomplished by gently rotating the tube between the fingers. At intervals of five, ten and fifteen minutes a transfer is made with a 4 mm. platinum loop from each dilution to the seeding tube containing 10 cc. of the specified broth. This allows thirty seconds between transfers if ten dilutions are used. The tubes are then incubated at 37 C. for forty-eight hours, when the results are read. The phenol coefficient is calculated by dividing the greatest dilution of disinfectant that is capable of killing the test organism in ten minutes but not in five minutes by the phenol dilution that should do this. The phenol coefficient is designated according to the organism used, as, for example, *Staphylococcus aureus* phenol coefficient, if this organism was used in the test.

Chemicals Employed.—Twenty grams of crystalline metaphen was generously donated by the Dermatological Research Laboratories. Two solutions were prepared: (1) an alcoholic solution, in which definite amounts of crystalline metaphen were dissolved in 95 per cent alcohol, and (2) an alkaline solution, in which metaphen was dissolved in distilled water made alkaline (p_H 10.0)

5. Raiziss, G. W., and Severac, Marie: J. Infect. Dis. **40**: 447 (March) 1927.
6. Peterson, J. B.: Mercurials: A Proposed Method of Laboratory Evaluation and Classification, J. A. M. A. **87**: 223 (July 24) 1926.
7. Branham, S. E.: J. Infect. Dis. **44**: 142, 1929.
8. Raiziss, G. W.; Severac, Marie; and Moetsch, J. C.: Metaphen as a Germicide and Skin Disinfectant, J. A. M. A. **94**: 1199 (April 19) 1930.
9. Leonard, Veader: Pitfalls in the Interpretation of Experiments on Skin Disinfection, J. A. M. A. **94**: 1524 (May 10) 1930.
10. White, E. C., and Hill, Justina: Insufficience of Metaphen as a Skin Disinfectant, J. A. M. A. **95**: 27 (July 5) 1930.
11. Dobson, J. F.: Lancet **2**: 970 (Nov. 9) 1929.
12. Rideal, S., and Walker, J. T. A.: J. Roy. San. Inst. **24**: 424, 1903; Approved Technique of the Rideal-Walker Test, London, H. K. Lewis & Co., 1921.
13. Bull. 82, Hyg. Lab., U. S. P. H. S., April, 1912; reprint 675, Pub. Health Rep. **36**: 1559, 1921.
14. Reddish, G. F.: Am. J. Pub. Health **15**: 534 (June) 1925; **16**: 283 (March) 1926.
15. Reddish, G. F.: Am. J. Pub. Health **17**: 320 (April) 1927.
16. Reddish, G. F.: The Standardization of Disinfectants and Antiseptics, chapter XXII, The Newer Knowledge of Bacteriology and Immunology, edited by E. O. Jordan and I. S. Falk, Chicago, 1928, p. 301.

with sodium hydroxide. The alcoholic solution was always employed in in vitro tests and the alkaline intravenously. The mercuric chloride was obtained from Merck & Co., and dilutions were made in distilled water or broth. The hexylresorcinol solution S. T. 37, lot number 4304E100405, was obtained through Sharp and Dohme and consisted of "one part hexylresorcinol in one thousand parts of a mixture of 30 per cent glycerin and 70 per cent distilled water." Further dilutions were made in distilled water. Mercurochrome-220 soluble came from Hynson, Westcott and Dunning. The aqueous solution was made in distilled water and the alcohol-acetone solution was prepared according to the formula of Scott.[17] The tincture of iodine solution was prepared according to the U. S. P. formula, which insures its stability of iodine content and miscibility with water. The phenol, U. S. P. X, from Merck & Co., had a congealing point at 46 C. and the 5 per cent stock solution was standardized by titration with tenth-normal bromine water according to the formula in the U. S. Pharmacopeia (tenth revision). Two lots were made of each chemical solution and placed in dark hard-glass containers, tightly stoppered. One lot remained unopened and was tested for deterioration after six months' storage at room temperature. Little or no deviation in stability and disinfecting potency was observed in any of the chemicals employed from the original values obtained six months previously.

Control Precaution of Chemical Transfer.—Of utmost importance in this type of study is the necessity for careful control of inhibition due to chemical substance possibly transferred by the 4 mm. loop from the disinfecting tube to the seeding tube containing 10 cc. of sterile broth. Churchman [18] estimated that a loopful, 2 mm. in diameter, added to 7 cc. of broth gives a dilution of approximately 1 : 70,000. By means of the Πr^2 formula Shippen [19] concluded that a loop, 4 mm. in diameter, transferred to 10 cc. of broth, according to the Hygienic Laboratory method, gives a dilution of about 1 : 25,000, or approximately 0.02 cc. of the fluid. It is obvious that the Πr^2 formula fails to take into consideration the depth of the film, irregularity in the shape of the loop, or possible adsorption of fluid to the wire on transfer. Therefore, Shippen makes the conservative estimate that the dilution produced by adding the standard 4 mm. loop to 10 cc. of broth is not greater than 1 : 2,000. In the present investigation, when 0.5 cc. of the culture is added to 5 cc. of the disinfectant, the concentration of the disinfectant is slightly reduced (1 : 109,090, or 9 per cent reduction) and for practical purpose the loop, 4 mm. in diameter, transfers 0.02 cc. of the disinfectant. If the disinfectant is already diluted 1 : 120,000 (table 1), then 0.02 cc. of the 1 : 120,000 dilution transferred to 10 cc. of broth gives a final concentration of the original disinfectant equal to 6×10^{-7}. From experimental observation this concentration of disinfectant (metaphen) is 3.8 times too low to inhibit growth of *Staphylococcus aureus*, which is accomplished by a concentration of metaphen equal to 1.6×10^{-7} (table 5). By actual demonstration, inhibition of growth of *Staphylococcus aureus* took place when an excess of 9 loopfuls of the 1 : 120,000 dilution of metaphen was transferred to 10 cc. of broth. Notwithstanding the remote possibility of inhibition due to one transfer of chemical by means of the 4 mm. loop, a rule was made to add to all seeding tubes found sterile after forty-eight hours' incubation at 37 C. a drop of an eighteen hour broth culture of the respective test organism. Subsequent growth would indicate that an inhibiting amount of disinfectant had not been carried over.

Micro-Organisms Employed.—In the belief that the phenol coefficient test should be conducted with organisms usually encountered under clinical conditions, which include both vegetative and spore-bearing bacteria, the following organisms were freshly isolated from human sources at the beginning of this study: *Staphylococcus aureus, Streptococcus hemolyticus,* the gonococcus and *B. coli.* The culture of *B. anthracis* was isolated post mortem and *B. subtilis* was obtained from the air. The presence of spore-bearing *B. anthracis* and *B. subtilis* was ascertained by Dorner's method of staining the organism with carbolfuchsin and a saturated aqueous solution of nigrosin. Although the vegetative forms exceeded in numbers the spore-bearing forms in the daily transfers of the cultures, the latter variety was always present in the cultures employed in these studies.

TABLE 1.—*Highest Dilution of Disinfectant Killing Micro-Organisms After Ten Minutes' Contact But Not After Five Minutes and Phenol Coefficients*

	Disinfectants										
Micro-Organisms	Metaphen	Phenol Coefficient	Hexylresorcinol	Phenol Coefficient	Mercuric Chloride	Phenol Coefficient	Tincture of Iodine	Phenol Coefficient	Mercurochrome	Phenol Coefficient	Phenol
Staphylococcus aureus	1:120,000	1,500	1:12,000	150	1:14,000	175	1:3,000	38	1:140	1.7	1:80
Streptococcus hemolyticus	1:90,000	900	1:8,000	80	1:25,000	250	1:4,000	40	1:300	3.0	1:100
B. coli	1:20,000	250	1:4,000	50	1:10,000	125	1:3,000	38	1:160	2.0	1:80
Gonococcus	1:60,000	750	1:8,000	100	1:9,000	112	1:4,000	50	1:180	2.2	1:80
B. anthracis	1:40,000	571	1:16,000	229	1:8,000	114	1:4,000	57	1:320	4.6	1:70
B. subtilis	1:40,000	500	1:16,000	200	1:10,000	125	1:4,000	50	1:300	3.7	1:80

RESULTS

In order properly to conduct Reddish's method for determination of phenol coefficients with various disinfectants and micro-organisms, several weeks of trial tests were carried out until uniform results were obtained. For the sake of arriving at approximately accurate figures it was decided to perform each separate test twenty times with definite dilutions of disinfectant against type organisms. The figures shown in tables 1 to 4 represent separately the final average phenol coefficient of twenty sets of tests, each consisting of ten tubes containing definite mixtures of organisms and disinfectant, from which a loopful of culture was transferred to 10 cc. of sterile broth in seeding tubes every five, ten and fifteen minutes. Each phenol coefficient figure, therefore, is based on the reading of 800 separate tubes. This extravagant procedure was decided on in order to arrive at exact information about the disinfecting and antiseptic power of metaphen, hexylresorcinol, mercuric chloride, tincture of iodine, mercurochrome and phenol.

17. Scott, W. W.; Hill, Justina H., and Ellis, M. G.: J. Urol. **14**: 135, 1925; Action of Mercurochrome and Tincture of Iodine in Skin Disinfection, J. A. M. A. **92**: 111 (Jan. 12) 1929.
18. Churchman, J. W.: J. Exper. Med. **16**: 221, 1912.
19. Shippen, L. P.: Am. J. Pub. Health **18**: 1231 (Oct.) 1928.

Disinfecting Action of Metaphen in Distilled Water.—The highest dilution of the various disinfectants employed which will kill *Staphylococcus aureus, Streptococcus hemolyticus,* gonococcus, *B. anthracis, B. coli* and *B. subtilis* after ten minutes' contact, but not after five minutes, is stated in table 1. It appears that metaphen possesses the highest degree of disinfectant potency both for the vegetative and the spore-bearing micro-organisms employed. By choosing *Staphylococcus aureus* as the test organism one finds that metaphen has a phenol coefficient of 1,500, hexylresorcinol 150, mercuric chloride 175, tincture of iodine 38, and mercurochrome 1.7. Similar advantage over the other micro-organisms is enjoyed by metaphen in relation to the other disinfectants employed and *B. coli* remains the most resistant organism in this series. When the actual quantitative efficiency of the disinfectants is scrutinized (table 3) it again becomes apparent that metaphen leads the list in disinfecting potency. In order to kill *Staphylococcus aureus* after ten minutes' but not after five minutes' contact, the amount of 0.000083 Gm. of metaphen in 10 cc. of distilled water is necessary, or a dilution of the chemical equal of 1:120,000. On this basis it is found (table 2) that metaphen is 10 times more powerful than hexylresorcinol, 8.6 times stronger than mercuric chloride, 40 times stronger than tincture of iodine, 857 times stronger than mercurochrome and 1,500 times more efficient as a disinfecting agent than phenol.

TABLE 2.—*Efficiency of Disinfectants as Compared with Metaphen* *

Micro-Organisms	Metaphen: Calculated Killing Amount, Gm. in 10 Cc.	Metaphen: Equivalent to One Part in	Efficiency as Compared with: Hexylresorcinol	Mercuric Chloride	Tincture of Iodine	Mercurochrome	Phenol
Staph. aureus	0.000083	120,000	10.0	8.6	40.0	857	1,500
Str. hemolyticus	0.00011	90,000	11.3	3.6	22.5	300	900
B. coli	0.0005	20,000	5.0	2.0	6.7	125	250
Gonococcus	0.00017	60,000	7.5	6.7	15.0	333	750
B. anthracis	0.00025	40,000	2.5	5.0	10.0	125	570
B. subtilis	0.00025	40,000	2.5	4.0	10.0	133	500

* Based on results of highest dilution of disinfectant killing micro-organisms after ten minutes' contact but not after five minutes.

TABLE 3.—*Quantitative Efficiency of Disinfectants* *

Disinfectant Employed†	Micro-Organisms: Staph. Aureus	Strep. Hemolyticus	B. Coli	Gonococcus	B. Anthracis	B. Subtilis
Metaphen						
A.	0.000083	0.00011	0.0005	0.00017	0.00025	0.00025
B.	1:120,000	1:90,000	1:20,000	1:60,000	1:40,000	1:40,000
Mercuric chloride						
A.	0.00071	0.0004	0.001	0.0011	0.0013	0.001
B.	1:14,000	1:25,000	1:10,000	1:9,000	1:8,000	1:10,000
Hexylresorcinol						
A.	0.00083	0.0013	0.0025	0.0013	0.00083	0.00083
B.	1:12,000	1:8,000	1:4,000	1:8,000	1:16,000	1:16,000
Tincture of iodine						
A.	0.0033	0.0025	0.0033	0.0025	0.0025	0.0025
B.	1:3,000	1:4,000	1:3,000	1:4,000	1:4,000	1:4,000
Mercurochrome						
A.	0.71	0.33	0.62	0.56	0.31	0.33
B.	1:140	1:300	1:160	1:180	1:320	1:300
Phenol						
A.	1.25	1.0	1.25	1.25	1.4	1.25
B.	1:80	1:100	1:80	1:80	1:70	1:80

* Based on results of highest dilution of disinfectants killing micro-organisms after ten minutes' contact but not after five minutes.
† A, calculated killing amount of disinfectant in grams in 10 cc.; B, equivalent to one part in the stated dilutions.

Disinfecting Action of Metaphen in Human Serum.—In anticipation of the intravenous administration of metaphen, it was desirable to study its disinfecting power when dissolved in human serum. Table 4 shows that the highest dilution of metaphen dissolved in equal parts of human serum and broth, that will kill *Staphylococcus aureus* after ten minutes' but not after five minutes' contact, is 1:16,000, a reduction of 7.5 times the efficiency observed when dissolved in distilled water. Similar reductions are observed with the other test organisms. In spite of the expected reduction of its disinfecting potency when dissolved in viscid solutions, metaphen remains 400 times more efficient than mercurochrome dissolved in equal parts of human serum and broth when placed against *Staphylococcus aureus.* It should be pointed out that no trace of precipitation of serum proteins was observed in serum to which the alkaline solution of metaphen in 1:200 dilution was added. Samples of such mixtures were left in the incubator at 37 C. and at room temperature for several weeks without traces of sedimentation being observed.

Antiseptic Action of Metaphen in Broth.—The same chemicals and organisms were made use of in the study of the highest dilution of disinfectants which would completely inhibit the growth of the micro-organisms after forty-eight hours' contact at 37 C. The antiseptic action is demonstrated by adding 0.1 cc. of an eighteen hour broth culture of the respective micro-organism to a series of test tubes containing 5 cc. of broth in which the antiseptic agent is dissolved in gradually increasing dilutions exceeding 1:20,000,000. The series of inoculated tubes are then incubated at 37 C. for forty-eight hours, when they are read. The highest dilution of the disinfectant that will completely inhibit any growth of the test organisms is taken as the antiseptic value of the chemical. The figures in table 5 represent the average mean of twenty separate serial tests.

TABLE 4.—*The Highest Dilution of Disinfectant Diluted in (1) Distilled Water and (2) Equal Parts of Human Serum and Distilled Water, Capable of Killing Micro-Organisms After Ten but Not Five Minutes' Contact*

Disinfectant	Micro-Organisms: Staph. Aureus	Strep. Hemolyticus	B. Coli	Gonococcus	B. Anthracis
Mercurochrome					
(1)	1:140	1:300	1:160	1:180	1:320
(2)	1:40	1:70	1:30	1:50	1:60
Percentage*	28.6	23.3	18.8	27.8	18.8
Metaphen					
(1)	1:120,000	1:90,000	1:20,000	1:60,000	1:40,000
(2)	1:16,000	1:16,000	1:2,000	1:16,000	1:32,000
Percentage*	13.3	17.8	10.0	26.7	80.0

* Percentage of efficiency of drug dissolved in 50 per cent serum.

Again choosing *Staphylococcus aureus* as the test organism, one finds that metaphen completely inhibits the growth in a dilution of 1:16,400,000, mercuric chloride in 1:32,000 dilution, hexylresorcinol in 1:24,000 dilution, mercurochrome in 1:18,000, tincture of iodine in 1:1,800 dilution and phenol in 1:800 dilution (table 5). From these figures it appears that metaphen is 512 times stronger than mercuric chloride, 683 times stronger than hexylresorcinol, 911 times stronger than mercurochrome, 9,111 times stronger than tincture of iodine and 20,500 times more powerful than phenol. The antiseptic potency of metaphen for the other test organisms is slightly lower than that obtained against

Staphylococcus aureus, but in the final analysis it leads excessively the other chemicals employed.

Antiseptic Action of Metaphen in Human Serum.—Serial dilutions of the alkaline solution of metaphen were dissolved in equal parts of human serum and broth to which was added the eighteen hour culture of the test organism. Similar mixtures were made with mercurochrome. After forty-eight hours' incubation at 37 C. one finds (table 6) that it requires a concentration of 1:120,000 of metaphen to inhibit completely

TABLE 5.—*Highest Dilution of Antiseptic in Beef-Infusion-Broth (pH 7.6) Inhibiting Growth of Micro-Organisms After Forty-Eight Hours' Incubation at 37 C.*

	Antiseptics					
Micro-Organisms	Metaphen	Mercuric Chloride	Hexylresorcinol	Tincture of Iodine	Mercurochrome	Phenol
Staph. aureus	1:16,400,000	1:32,000	1:24,000	1:1,800	1:18,000	1:800
Strep. hemolyticus	1:6,400,000	1:160,000	1:24,000	1:3,200	1:32,000	1:800
B. coli	1:200,000	1:32,000	1:4,000	1:3,200	1:32,000	1:800
Gonococcus	1:1,600,000	1:50,000	1:40,000	1:3,600	1:36,000	1:1000
B. anthracis	1:6,400,000	1:50,000	1:32,000	1:3,200	1:32,000	1:800
B. subtilis	1:6,400,000	1:60,000	1:24,000	1:3,200	1:32,000	1:800

growth of *Staphylococcus aureus*, while a concentration of 1:6,000 of mercurochrome is necessary to accomplish the same inhibition. In other words, metaphen in human serum remains 20,000 times more powerful against *Staphylococcus aureus* than mercurochrome dissolved in human serum after forty-eight hours' contact at 37 C. Again one observes that *B. coli* offers the greatest resistance to both chemicals, a dilution of 1:40,000 of metaphen accomplishing what a dilution of 1:4,000 of mercurochrome is able to do.

The unusual power of metaphen to exert antiseptic action in millionth dilutions should render this drug useful as a preservative of biologic products since the content of mercury in 1 cc. of 1:1,000,000 dilution of metaphen equals 0.000001 Gm. × 0.5998, an amount of mercury insufficient to contraindicate its usefulness as a preservative of biologic products.

II. INTRAVENOUS ADMINISTRATION OF METAPHEN IN RABBITS

The classic studies of Kolmer, Lucke, Schamberg and Raiziss[20] of the histologic changes produced experimentally in rabbits by arsphenamine, neoarsphenamine and mercury have clearly demonstrated that the

TABLE 6.—*Highest Dilution of Antiseptics Dissolved in Equal Parts of Human Serum and Broth Inhibiting Growth of Micro-Organisms After Forty-Eight Hours' Incubation at 37 C.*

	Micro-Organisms						
Antiseptic Employed	Staph. Aureus	Strep. Hemolyticus	B. Coli	Gonococcus	B. Anthracis	B. Subtilis
Mercurochrome	1:16,000	1:16,000	1:4,000	1:16,000	1:16,000	1:16,000
Metaphen	1:120,000	1:160,000	1:40,000	1:120,000	1:160,000	1:160,000

intravenous administration of various mercurial preparations induces predominantly kidney lesions in direct proportion to the amount of pure mercury administered. They likewise observed that the toxicity of mercurial preparations is directly proportional to the amount of pure mercury injected. Our main concern in administering metaphen intravenously in rabbits was to study its toxicity and the histologic changes produced by gradually increasing and repeated doses of the alkaline solution of metaphen. The solution for intravenous administration was prepared by dissolving 1 Gm. of crystalline metaphen in 1,000 cc. of distilled water made alkaline (p_H 10.0) with sodium hydroxide. As crystalline metaphen contains 59.98 per cent mercury, the 1:1,000 dilution of alkaline solution contains 0.0005998 Gm. of mercury per cubic centimeter. On this basis the figures in table 7 are calculated.

Sixteen normal and adult rabbits were employed. The schedule for the intravenous injections of metaphen in twelve rabbits, and the results are tabulated in table 7. The rabbits, given doses in excess of 10 cc. of the 1:1,000 alkaline solution of metaphen, died from extreme intoxication and maximum organic changes. The injections were made into the lateral vein of the ear, care being taken not to allow the drug to enter the tissue. An interval of five days was allowed between

TABLE 7.—*Intravenous Administration of 1:1,000 Alkaline Metaphen in Normal Adult Rabbits; Five Days Interval Between the Injections*

Rabbit No.	Weight, Gm.	Dose of Metaphen, Cc.	Calculated Amount of Mercury Injected: Per Dose, Gm.	Per Kilo Weight, Gm.	Total Mercury, Gm.	Results
344	2,150	1	0.0005998	0.000279		
		1	0.0005998	0.000279		
		1	0.0005998	0.000279	0.001799	Survived; no histologic changes
345	2,300	2	0.0011996	0.000521		
		2	0.0011996	0.000521		
		2	0.0011996	0.000521	0.003598	Survived; no histologic changes
346	1,960	4	0.0023992	0.001224		
		4	0.0023992	0.001224		
		4	0.0023992	0.001224	0.007197	Survived; no histologic changes
347	2,180	6	0.0035988	0.001650		
		6	0.0035988	0.001650		
		6	0.0035988	0.001650	0.010796	Survived; no histologic changes
348	2,710	8	0.0047984	0.001770		
		8	0.0047984	0.001770		
		8	0.0047984	0.001770	0.014395	Survived; tubular hemorrhagic nephritis; pulmonary congestion
349	2,540	10	0.005998	0.002361		
		10	0.005998	0.002361	0.011996	Died 72 hours*
350	2,160	12	0.007197	0.003331	0.007197	Died 48 hours*
351	2,310	14	0.008396	0.003634	0.008396	Died 18 hours*
352	2,650	16	0.009595	0.004080	0.009595	Died 24 hours*
353	2,640	18	0.010796	0.004089	0.010796	Died 24 hours*
354	2,140	20	0.011996	0.005605	0.011996	Died 36 hours*
355	2,810	22	0.013956	0.004966	0.013956	Died 20 hours*

* Examination revealed tubular hemorrhage, nephritis, hepatic and pulmonary congestion, and hemorrhage of the large intestine.

subsequent injections and a total of three injections were made on each animal except on rabbit 349, which died three days following the second injection, and rabbits 350-355, which succumbed following one injection of from 12 to 20 cc. of the 1:1,000 alkaline solution. The first symptoms of toxicity were observed when a dose in excess of 6 cc. (theoretically containing 0.0047 Gm. of pure mercury) was injected. The lethal dose for a rabbit weighing 2,540 Gm. was approximately 10 cc. of the 1:1,000 alkaline metaphen solution, a dose containing 0.005998 Gm. of mercury or 0.002361 Gm. of mercury per kilogram of rabbit's weight. This study clearly demonstrated that the toxicity of metaphen is directly related to the amount of pure mercury injected and that the drug is predominantly nephrotropic, inducing the greatest damage in the convoluted tubules.

The surviving rabbits were killed by ether on the fifth day following the third injection. Autopsies were

20. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: J. Cutan. Dis. **33**: 819, 1915. Kolmer, J. A., and Lucke, Baldwin: A Study of the Histologic Changes Produced Experimentally in Rabbits by Arsphenamin, Arch. Dermat. & Syph. **3**: 483, 515, 531 (April) 1921. Schamberg, J. F.: Clinical Commentary on Studies of Histologic Changes in Organs Induced by Arsphenamin, by Neo-Arsphenamin and by Mercury, ibid., p. 571.

performed on all the animals within ten hours after death. Sections were made from the brain, heart, lungs, liver, spleen, pancreas, suprarenals, kidneys, testes and large intestine. The histopathologic material was studied thoroughly with the generous assistance of Dr. Harry P. Smith, associate professor of pathology. No conspicuous lesions were observed in rabbits 344-347. These animals had received three successive doses of the alkaline solution of metaphen at five-day intervals, the doses ranging from 1 cc. to 6 cc. Under the conditions in which this study was conducted, it is therefore safe to state that individual doses of the 1:1,000 dilution of alkaline metaphen (p_H of 10.0) to the amount of 3 cc. per kilogram of rabbit weight and containing approximately 0.00165 Gm. of mercury exert no deleterious effect on the animal tissue. On the other hand, it is quite evident that doses in excess of 3 cc. per kilogram of rabbit weight induce extensive structural changes in organs besides the initial extreme intoxication typical of mercurial poisoning. The kidneys showed the most interesting lesions, presenting fresh hemorrhages into the convoluted tubules with extensive necrosis of the epithelial cells. No changes were observed in the glomeruli, but much of the epithelium of the cortex was necrotic and masses of colloid occurred within the lumens of numerous tubules. The brain and meninges showed no areas of necrosis, except occasional foci of round cells. The heart appeared normal. The lungs presented a normal appearance except for small patches of fresh hemorrhage and congestion. The spleen showed extensive hemorrhage and some of the red blood cells were taken up by phagocytes. The liver showed moderate congestion and increased granularity with some deposition of hemosiderin. A few patches of fresh hemorrhage and minute swollen areas appeared in the colon, with numerous small plaques of a rough exudate scattered over the crests of the transverse folds, suggestive of mercurial destruction of the mucosa and underlying tissue. The pancreas, suprarenals and testes appeared normal. Intracystic aspiration of urine, taken post mortem from rabbits that died following the injections, revealed an excessive excretion of albumin, numerous tubular casts and many red blood cells.

This study demonstrates that the intravenous administration of metaphen entails serious organic changes if the drug is not used with circumspection and knowledge of the safe limits of dosage. Repeated injections of the 1:1,000 alkaline solution of metaphen have been administered in sixteen cases of blood stream infections by Bernstine,[21] who observed no untoward reactions following as many as thirteen injections, each consisting of 10 cc. He reported striking changes in the clinical picture of puerperal septicemia with rapid recovery and recommends its intravenous administration as a safe and potent measure in infection of the blood stream. Although it is presumptuous to conclude from in vitro tests what a disinfectant will accomplish in vivo it is reasonable and safe to suggest that metaphen should be given an extended trial whenever the control of septic processes is indicated.

This present comparative investigation of the disinfecting and antiseptic actions of metaphen and other commonly used chemicals seemed highly desirable as preliminaries to our proposed study of metaphen as a preoperative skin sterilizing agent as well as for the control of experimental local and blood stream infection. Such studies were suggested by Dr. W. W. Scott, assistant professor of urology, in association with whom the subsequent work is being conducted. This work is well under way and will be reported shortly.

21. Bernstine, J. B.: Am. J. Obst. & Gynec. **18**: 220 (Aug.) 1929.

CONCLUSIONS

This preparatory study for the evaluation of metaphen as a preoperative skin sterilizer and blood stream disinfectant necessitated an extensive investigation on the disinfecting and antiseptic potency of mercuric chloride, hexylresorcinol, mercurochrome, tincture of iodine and phenol against micro-organisms usually encountered under clinical conditions, such as *Staphylococcus aureus, Streptococcus hemolyticus,* the gonococcus, *B. anthracis, B. coli* and *B. subtilis.*

Using *Staphylococcus aureus* as the test organism, it was found that metaphen had a phenol coefficient of 1,500, hexylresorcinol of 200, mercuric chloride of 175, tincture of iodine of 38, and mercurochrome of 1.7. Using *B. coli,* the most resistant of all the test organisms, metaphen was found to have a phenol coefficient of 250, hexylresorcinol of 50, mercuric chloride of 125, tincture of iodine of 38 and mercurochrome of 2. These inverse ratios of phenol coefficients of mercurochrome against *B. coli* (2.0) and *Staphylococcus aureus* (1.7) as contrasted with the values of metaphen against *B. coli* (250) and *Staphylococcus aureus* (1,500) cannot be explained on the basis of the limited experimental data available in this study. The question arises as to whether or not a selective disinfecting or antiseptic action is operative; viz., of metaphen for gram-positive bacteria and mercurochrome for gram-negative forms. This possibility will be further investigated.

When dissolved in equal parts of human serum and broth, it was found that metaphen remained 400 times more efficient than mercurochrome against *Staphylococcus aureus* while mercurochrome remained 10 times less effective than metaphen against *B. coli.*

The antiseptic action of metaphen against *Staphylococcus aureus* persisted in a dilution of 1:16,400,000, while mercuric chloride stopped in a dilution of 1:32,000, hexylresorcinol in 1:24,000, mercurochrome in 1:18,000, tincture of iodine in 1:1,800 and phenol in 1:800 dilution. In using *B. coli,* it was found that metaphen exerted antiseptic action in a dilution of 1:200,000, mercuric chloride in 1:32,000, hexylresorcinol in 1:4,000, tincture of iodine in 1:3,200 and phenol in 1:800, while mercurochrome remained active in 1:32,000 dilution, equal in antiseptic strength with mercuric chloride and 6 times less efficient against *B. coli* than metaphen.

When dissolved in equal parts of human serum and broth, the antiseptic action of metaphen against *Staphylococcus aureus* continued in 1:120,000 dilution, while mercurochrome stopped in 1:6,000 dilution. Using *B. coli,* it was found that mercurochrome, dissolved in equal parts of human serum and broth, remained antiseptic in 1:4,000 dilution, 10 times less efficient than metaphen dissolved in human serum and broth.

No precipitation of the serum proteins took place in as high a concentration of alkaline metaphen as 1:200.

When injected intravenously into normal adult rabbits, the lethal dose of the 1:1,000 alkaline solution of metaphen was approximately 10 cc., which represented a calculated weight of 0.002361 Gm. of mercury injected per kilogram of rabbit weight. Death was mainly due to tubular hemorrhagic nephritis, the convoluted tubules showing the greatest structural changes. No organic damage was demonstrated after repeated doses containing less than 0.0015 Gm. of mercury per kilogram of rabbit weight.

These studies have shown that, in vitro, metaphen possesses unusual disinfecting and antiseptic powers far in excess of those possessed by mercuric chloride, hexylresorcinol, mercurochrome, tincture of iodine and phenol. It has a low toxicity in the recommended doses (10 cc. of 1:1,000 alkaline dilution for intravenous administration) and does not precipitate out serum proteins. Because of these superior qualities metaphen is worthy of an extended clinical trial in local infections as well as infections in the blood stream.

PROPHYLAXIS OF PUERPERAL SEPSIS*

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The incidence of puerperal sepsis has shown but a moderate decrease the past few years. Even today its frequency is appalling and justifies the tremendous volume of censure to which the American medical profession is now subjected.

During the past quarter of a century the surgical technic of delivery has shown definite improvement. The progress of labor is now largely determined by abdominal palpation; vaginal examinations are made with increasing care and only when a rectal examination will not furnish the desired information. But there still remains a degree of sepsis which is inconsistent with a normal physiologic process, constitutes a national peril and demands further research in contradistinction to the indifference of today.

Severe and even fatal infections can and do occur in spontaneous deliveries under ideal conditions when the patient has been in labor only the average length of time and presents no history of recent coitus, douches and no vaginal or even rectal examinations during labor, thereby eliminating outside sources of contamination as well as suggesting a search for the offending organism within the birth canal and finding a safe method to eradicate it before labor begins.

In the pregnant woman routine speculum examination will show erosion of varying degree in 80 per cent of multiparas and 10 per cent or more of primiparas. From 175 of these cases of erosion we made direct cultures (83 cases by Dr. T. K. Reeves and 92 cases by Dr. Moses H. Baker), finding streptococcus in 10.25 per cent of the cases; 3.66 per cent were of the hemolytic strain.

A joint paper by Dr. T. K. Reeves and one of us was read at a meeting of the Allegheny County Medical Society, April 15, 1929, and published in the *Pittsburgh Medical Bulletin*, May 18, 1929, in which Dr. Reeves gave a bacteriologic report on eighty-three cases examined by him at the Elizabeth Steel Magee Hospital. The figures given in the present paper represent the average of the total and do not materially differ from the group done and reported by Dr. Reeves.

Dr. Reeves employed the following technic: The external genitalia were first thoroughly cleansed with boric acid solution. A sterile speculum was next introduced and the cervix exposed without, however, being touched with the instrument. An ordinary wood and cotton applicator, which had been previously sterilized in a stopped tube, was removed from its container, touched to the erosion and immediately planted in hormone infusion broth, previously kept at body temperature. The cultures were incubated for twenty-four hours and examined grossly, and smears were made. Gram's method of staining was followed.

Transfer was made in every case. If growth was noted in the broth, a human agar slant was streaked and, if not, a blood agar slant. The original broth culture was reincubated or saved, depending on the results. The transfers were, in turn, incubated for a similar period and inspected. The various types of colonies were identified by their gross appearance and stained smears.

The individual types of colonies were transferred to suitable mediums for final identification.

An interesting feature noted during this procedure was the inability to transfer some of the organisms from liquid to solid mediums. This was facilitated and, in fact, made possible in some instances by incubating the liquid medium under "lowered oxygen tension."

All of the patients in the series were between two and seven months pregnant, and each patient presented what was clinically diagnosed as an erosion.

The organisms that were found, with the percentages of their occurrence, were: in the staphylococcus group, *Staphylococcus albus*, 56.41 per cent, *Staphylococcus aureus*, 5.12 per cent; in the hemolytic streptococcus group, *Streptococcus pyogenes*, 1.28 per cent, *Streptococcus equi*, 1.28 per cent; in the nonhemolytic streptococcus group, *Streptococcus salivarius*, 2.56 per cent, *Streptococcus fecalis*, 3.84 per cent; unclassified streptococci, 1.28 per cent. The total percentage of staphylococci was 61.53; the total percentage of *Streptococcus viridans* was 7.68, of *Streptococcus hemolyticus*, 2.56 and of all streptococci, 10.25.

Certain organisms would not transfer to blood agar; they were: diphtheroid bacilli, 10.25 per cent; in the gram-positive group, spore-bearing aerobes, 8.96 per cent, Doederlein's bacilli, 7.68 per cent; in the gram-negative group, *B. coli-communior*, 3.79 per cent, *B. coli-communis*, 2.56 per cent; *Bacillus pyocaneus*, 1.28 per cent.

Other organisms, as already mentioned, comprise, in our study, the flora of cervical erosion.

During the course of even a normal spontaneous delivery the cervix is subjected to considerable bruising and stretching, lacerations of varying degree occurring in at least 90 per cent of all deliveries.

The foregoing analysis of the pregnant woman warrants the deduction that 90 per cent of labors leave a bruised, traumatized and lacerated cervix. In 10 per cent of these occurs the additional factor necessary to produce infection, the presence of bacteria. Four per cent of the bacteria found are hemolytic streptococci; hence in at least 4 per cent of spontaneous deliveries infection should occur and would do so were it not for the fact that the individual resistance to the organism is sufficient to prevent its invasion of surrounding tissues.

Following the suggestion of Dr. G. P. Coopernail, Bedford, N. Y., we began cauterizing the cervix in all postpuerperal cases in which erosion existed, with a view to relieving patients of an annoying leukorrhea. In the course of time we discovered that we had cauterized thoroughly and deeply several pregnant uteri; hence the conclusion that the cervix could be safely cauterized in the milder and more moderate erosions

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even though pregnancy existed. In the beginning of this work great caution was exercised and only the milder cases were cauterized. We gradually extended the cauterization until a bright red granular area surrounded the external os on all sides as much as a half centimeter; but in no case did we attempt cauterization, nor do we believe the procedure applicable, when the erosion is complicated by a laceration that extends much beyond the external os, or in acute gonorrheal infection. We also limited the cauterization to the first ten or twelve weeks until by experience we found that it could be done as effectively any time during the first half of pregnancy. All patients cauterized are requested to remain in bed for the first two weeks, but many of our clinic patients no doubt follow the usual routine of life with no noticeable differences in the healing process. The clinical course of healing of the cervix is the same as is experienced in the nonpregnant uterus. If we later find our cauterization to be incomplete we recauterize, provided the patient has not passed the twenty-eighth week of her pregnancy.

In a series of more than 2,000 cases in which the cervix was cauterized, one abortion occurred. An analysis shows these advantages of cauterization:

1. It does not prolong the first stage of labor or delay the spontaneous dilatation of the cervix.
2. It does not increase the percentage of intervention by forceps, version or otherwise.
3. No case of sepsis has occurred in the healed cervix, while to the contrary, during the same period, two cases of severe sepsis occurred in cases in which the erosion was noted as being too extensive or laceration too deep to permit successful cauterization.
4. Temperatures are remarkably flat in contradistinction to the moderate elevations (100.6 F. or under) in the noncauterized group.
5. Antepartum cauterization of the cervix usually leaves a noneroded (healed) cervix at the end of the puerperal period in contradistinction to the 70 per cent of erosions in which cauterization had not been done.

A cervix which shows an erosion at the end of the puerperal period should be cauterized as a prophylactic measure against infection in a subsequent pregnancy, to assist in correcting residual leukorrhea, pain and discomfort in the pelvic organs and to correct a chronic irritation which may later predispose the individual to cancer. No case of cancer has occurred to our knowledge in which we have a postpuerperal note recording the cervix as healed.

The method used in cauterizing the cervix is, first to expose the cervix with a bivalve speculum. An olive-like bulb is heated to a degree below red heat, and applied directly to the erosion and if necessary is extended from 0.25 to 0.5 cm. into the cervical canal; the procedure is discontinued when the patient complains of heat to the surrounding tissues or of a cramp in the uterus which patients compare to a premenstrual cramp; it is resumed and discontinued as indicated by the response of the patient. Rarely does the whole operation require more than a few moments for its completion and there is no difficulty in having even the nervous woman submit to the second cauterization if it is indicated at the end of six weeks, provided, of course, the patient at that time has not passed the twenty-eighth week of her pregnancy. We prefer the lessened heat in the thin wire which constitutes the stem of the olivary bougie to the heavier and hotter stem of the electric cautery, which causes discomfort to the lateral walls of the vagina and, in addition, greatly obstructs the view, thereby increasing the danger of extending the cauterization too far into the cervical canal.

Histologic studies of the cervix show the glands surrounding the external os to be deeper and more racemose than those nearer the internal os; hence they are more frequently infected and more readily destroyed by the actual cautery and cases that have been proved by culture to harbor hemolytic streptococci have shown negative cultures six weeks later.

The absence of a thorough histologic, pathologic and bacteriologic understanding of the cervix serves as the excuse for the unalterable past, but present knowledge increases responsibility and the ideal of the future will not be attained until every woman is delivered in such a manner as to exclude contamination from external sources and every birth canal has been freed from pathogenic organisms, which so frequently are present in the eroded cervix.

Every pregnant woman should be subjected to a speculum examination early in her pregnancy, and if an erosion is found it should be looked on as a potential danger and healed.

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ABSTRACT OF DISCUSSION

DR. E. D. PLASS, Iowa City: The fact that the normal vagina and cervix contain organisms of various sorts has been known for years. Streptococci can be cultivated from the vagina, but the method by which specimens are taken will alter the results obtained. It is equally reasonable to follow the authors in their statement that the lacerated, eroded cervix contains more such organisms than does the cervix that is not thus affected. It is recognized also that the eroded, infected cervix may be treated during pregnancy with the cautery without interfering with the progress of gestation. But the fact remains, after these admissions, that it is relatively uncommon that one can talk of puerperal infection as autoinfection. There are certain facts in the incidence of puerperal infection of a serious nature which contravene this view. The woman who is delivered at home in the country generally has a lower mortality than does the woman who is delivered in the city in a hospital. If autoinfection actually plays any large part in the production of puerperal sepsis, one would anticipate that the rural inhabitant would have an incidence of serious infection at least as great as that of her supposedly better protected city sister. For years physicians have argued against the idea of autoinfection because it tends to decrease the sense of responsibility which the individual practitioner has in the conduct of labor. I believe that the burden of proof is on him who makes the claim that puerperal infection is, except in very rare instances, an autogenous affair. The mere fact that organisms are present in the vagina does not mean that they have anything to do with puerperal infection. Up until the present certainly, and I think that always a certain amount of attention must be paid to experience, the idea has been firmly held that the individual in attendance should hold himself responsible for puerperal infection. I have always insisted that in every case of fever after delivery a diagnosis of puerperal infection be made, unless it can be proved satisfactorily that there is some other adequate explanation for the febrile reaction and that in each case the responsibility for that infection must be borne by the physician directly, and not indirectly, as would be the case with autoinfection.

DR. DANIEL LONGAKER, Philadelphia: It is proper to treat these patients in the way described by the authors. The incidence of infection is lessened thereby. In marked cases of erosion, especially in primiparas when they go on spotting, I feel that again and again what has been considered as an impending abortion and what would have resulted in an abortion, had not these cases of erosion been cured by cautery, has been arrested. I would answer the last speaker in this way, because I heartily disagree with him. Why not cure up these erosions? They certainly are the nidus of germs of known pathogenic nature,

often hemolytic streptococci and, in addition to this, even though vaginal examinations are not made, even though these patients delivered themselves spontaneously, there still is a residuum of cases of streptococcus infection and now and then a fatal case in which the patient has never been touched by the vagina at all. Why not cure up these erosions when there is the opportunity? The patients undoubtedly do better. My associate and I watch over our cases antenatally and postnatally. We do not feel we have discharged our duty to our patients post partum until we have cured up every vestige of erosion, until they are absolutely free from leukorrhea and all discharges, and then we feel they are safe and we know they are satisfied.

DR. H. A. MILLER, Pittsburgh: I have practiced medicine in the western part of Pennsylvania and I have gone barnstorming in all the little towns in that part of the country. I have seen and know of just as much puerperal sepsis that occurs in the country districts as occurs in our own hospital. If any one can give me a logical and sane reason as to why we should permit a woman to go in labor with 4 per cent of hemolytic streptococci in her cervix when we can safely clear them up (we have a total of 2,000 cases that we have cleared up prior to labor), I will stop. Until then, I will say that were I a woman I would not want to enter the labor stage without knowing I had a healed cervix, free from streptococci.

THE TREATMENT OF PNEUMONIA*

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The treatment of pneumonia with specific serums offers so much of promise that it would be inadvisable and unwise to do less than commend and encourage the further intensive study of this development of therapy. However, it is possible that this phase of treatment has proved so fascinating, has so intrigued the interest of the masters of medicine, that other considerations are being somewhat neglected in current medical literature.

It must be remembered that polyvalent serums are still in the experimental stage and that specific serums are of proved value in only a small percentage of the total of pneumonia cases, particularly when the large number of the epidemic influenza variety are included that have been occurring in the last twelve years.

In only a small percentage of the cases for which there is a specific serum are the facilities available for hospitalization or laboratory study, and most of these are seen or diagnosed too late for the specific treatment to have the full measure of value. Under present conditions the vast majority of cases must still be treated along nonspecific lines and it is this larger group that I wish to discuss.

During the last two or three decades there has been a material reduction in the mortality of most diseases. To determine the status of therapeutic success with the pneumonias I sent a questionnaire to a number of the larger and older hospitals of this country and, while many difficulties were encountered, I secured statistics from a sufficient number to give the total some value. These institutions are the Massachuetts General, Bellevue, St. Lukes, Garfield Memorial, Cook County and the Charity at New Orleans. Some of these were unable to give data far back into the past. The totals are given in table 1.

As far as these data may serve as a guide, it would seem that the close of 1929 found the medical profession without the evidences of any material progress in the treatment of these diseases. The advances that have been made in facilities for treatment, in dietetics and, in fact, in every related field should have tended to reduce mortality unless physicians had fallen short somewhere.

In the influenza epidemic of 1918, I was confronted with the necessity of treating a large group of cases

TABLE 1.—*Progress in Treatment of Pneumonia*

	Admitted	Died	
		Number	Per Cent
LOBAR PNEUMONIA			
1929	2,489	1,006	40.4
1915	2,102	679	32.3
1910	166	64	38.5
1905	589	255	43.3
1890	36	14	38.8
BRONCHOPNEUMONIA			
1929	1,401	671	47.8
1915	723	323	44.6
1910	57	30	52.6
1905	286	97	33.9
1890	11	4	36.3

of pneumonia of a variety to which I was unaccustomed and, for want of any better therapy, I adopted a plan of general care without any effort at specific treatment. The results were so satisfactory that I have since applied the same routine in a general way to almost all of my cases of pneumonia and feel that the results have justified the procedure.

Up to January 1 I had treated by this plan in the preceding three years the patients enumerated in table 2. This does not include those patients in my services who were given serums.

Cases treated in homes during this time and all cases in preceding years, constituting a rather large total, were not recorded in a way that would be exact enough for publication, but the average results were good.

These fifty cases manifestly constitute too small a group to have any definite statistical value, but they do show a favorable tendency.

It is not intended to recommend the arbitrary holding to a definite routine for all cases but rather to suggest a general scheme of management to be deviated from as individualization requires. My ward forms are labeled "suggestions" and not "orders." When a diagnosis is

TABLE 2.—*Results of Treatment by Author's Method*

	Number	Died
At the Baptist Hospital:		
Primary lobar pneumonia	12	1
Primary bronchopneumonia	8	0
At the Charity Hospital in 1928 and 1929:		
Primary lobar pneumonia	18	2
Primary bronchopneumonia	12	2

established or tentatively made, one of these mimeographed forms is attached to the records of the patient for direction in treatment and changes are entered in writing as indicated.

WARD SUGGESTIONS FOR ATTENTION TO PNEUMONIA PATIENTS

Absolute mental and physical rest.
Much fresh air, without direct exposure to cold drafts.
An ice bag to the head if the temperature is over 102 F.
A daily sponge bath.
Careful attention to oral hygiene.
From ½ to 1 fluidounce of liquid petrolatum each night.
Enemas, if needed for distention.
Castor oil any morning when needed.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

Forty grains of sodium citrate every two hours when awake. Discontinue on evidence of pulmonary edema.

One fluidrachm of aromatic spirit of ammonia every three or four hours if stimulation is indicated.

Digitalis in full doses if auricular fibrillation or auricular flutter develops; otherwise no digitalis unless ordered by the visiting staff.

Codeine in small doses if necessary to relieve pain, violent cough or restlessness of such a degree as to interfere with the patient's well being.

No morphine, atropine, strychnine, sparteine, acetylsalicylic acid or oxygen.

Diet: Water, strained soups and broths (made with rice or barley and one-half milk or one-fourth cream added), malted milk, or similar preparations (made with water), fruit juices (with milk sugar), coffee or tea (with cream and milk sugar). Give the coffee or tea to which the patient is accustomed.

After crisis, or after the temperature has sufficiently reduced by lysis, the patient may be put on a low protein diet, with small and frequent feedings.

After-Care: Keep patient in bed for at least two weeks after temperature reaches a permanent normal. Avoid violent physical strain for several months.

SUPPLEMENTARY WARD SUGGESTIONS (PNEUMONIA)

As in typhoid and tuberculosis, the patient is treated and not the disease. This is not a plan of neglect but one of intensive attention to all the details of general care. The medical staff should see the patient at least three times each twenty-four hours.

Particular attention must be given to conserving the circulatory apparatus. The patient must be kept free from noise, confusion, excitement and domestic or business cares.

Particular attention is given to maintaining the function of the diaphragm. Small frequent feedings are to be employed, sufficient elimination secured without violent purgation, and abdominal distention prevented or actively combated should it develop.

No oil or gas heaters must be allowed in the treatment quarters.

In cool weather, the patient must wear garments that protect from chilling.

Mustard poultices may be tried should there be a sense of oppression or constriction in the chest; do not repeat unless they give relief. No constriction must be put around the chest.

Should strapping be used for pleuritic pain, it must be removed as early as possible.

Have the patient lie on the back or on the affected side.

COMMENT

One of the main features of this plan is the avoidance of unnecessary medication and interference. How often do we see in consultation the results of the anxious gropings for therapeutic relief? One patient recently seen by me on the third day of treatment had received twenty-one different drugs, including digitalis, strychnine, sparteine, morphine, codeine, atropine, barbital, phenobarbital, bromides and acetysalicylic acid. Another was receiving as a routine digitalis, strychnine, sparteine and atropine, with morphine ordered at the discretion of the nurse.

In typhoid and tuberculosis when we began to treat the disease less, and properly care for the patient more, our results improved. I believe that the same principle might apply, in part at least, to pneumonia.

I have not the time nor space here to discuss in detail the various reasons back of the suggestions in this plan of treatment. Such questions as the routine use of digitalis, the administration of oxygen and the method of use, the employment of morphine and to what extent are unsettled in medicine. I have had these various problems up, by correspondence, with the chiefs of medicine in thirty of our leading hospitals during the past two years and have not found any uniformity of opinion or usage; but I did gather the impression that, whatever the literature, in actual practice the general tendency in the best institutions is away from active medication and toward expending infinite effort in promoting the comfort and well being of the patient by the measures of general care.

SUMMARY

1. The results in the treatment of the pneumonias have not advanced in keeping with that of other diseases or with general medical progress.

2. A possible answer may be found in a tendency to overtreatment.

3. The plan here presented consists essentially of:

(*a*) Unlimited attention to general care without "meddlesome interference."

(*b*) Conservation of the circulatory system by perfect rest.

(*c*) A rather high carbohydrate, low total diet.

(*d*) Careful, regular elimination.

(*e*) Mild alkalization.

(*f*) Symptomatic treatment only to meet definite indications.

(*g*) A plea for "masterful inactivity" when a case is progressing favorably and there is nothing of value to do.

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ABSTRACT OF DISCUSSION

DR. WILLARD C. STONER, Cleveland: It is unfortunate that in this day of scientific medicine, with the scientific advancement that is being made in the treatment of many diseases, the treatment of pneumonia remains largely as it has been through the past decades, aside from the probable help that is being given by the proper use of immune serums, which, for obvious reasons, is quite limited. Statistics from the large hospitals indicate that the death rate from pneumonia has not been materially altered in recent years, if the high death rate incident to the influenza epidemic is omitted. In a general way, I am quite in accord with the author's proposed plan of management. If such a plan should be followed when a number of physicians are responsible for managing pneumonia patients, with a multitude of opinions, I am sure that statistics would have more constructive value. At St. Luke's Hospital in Cleveland in the last year we have used as a routine an oxygen tent in all cases of cyanosis and I am convinced that mortality has been lowered. Of course, oxygen inhalation must be continuous either by the room or by the tent method and must have skilled supervision. I am convinced that intensive routine digitalis therapy, when there are no definite signs of a failing heart or when there are no disturbances in mechanism represent an abuse. I am not thoroughly in accord with Dr. Bethea's idea of not giving morphine or atropine. Of course, codeine sulphate should be used by preference for pain, cough and restlessness, but I am not willing to discard the judicious use of morphine in pulmonary edema with atropine as an adjunct. Dr. Osler stated on his deathbed that the thing that gave him most comfort was morphine and still more morphine. I should like to emphasize and reemphasize the value of high carbohydrate diet in the form of fruit juices, particularly large quantities of orange juice, or, if necessary, dextrose intravenously. The family physician has come back at me in Cleveland on the satisfactory outcome of serious cases in which orange juice has been used to the saturation point and he has asked, "What was your cure?" Orange juice. It would seem that fruit juices and dextrose have specific value when patients are desperately ill. Useless drugging should be given up. Finally, may I emphasize the importance of special nursing care as well as the damage done by repeated unnecessary physical examinations of the chest.

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OSTEOMYELITIS OF THE SKULL

REPORT OF CASES OCCURRING AS A RESULT OF FRONTAL SINUS INFECTION WITH STAPHYLOCOCCUS PYOGENES-AUREUS *

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The greatest confusion exists in the literature regarding osteomyelitis of the skull, especially its etiology and treatment. The reasons for this confusion are briefly as follows:

1. As a complication of frontal sinusitis, it is comparatively rare, and no one man has reported more than three cases occurring under his personal observation.

2. There is a lack of proper classification of the types of osteomyelitis resulting from various types of infection.

3. Treatment advocated ranges from extreme radicalism to extreme conservatism, the same dire results following each method.

The following statistics are taken from the paper on this subject by A. E. Bulson [1] to show the seriousness of this condition. During the last thirty years 55 cases have been reported with 37 deaths, a mortality of 67 per cent. Further analysis of Bulson's statistics reveals 28 cases of complicated chronic frontal sinusitis with a mortality of 75 per cent, and 27 cases of complicated acute frontal sinusitis with a mortality of 60 per cent, while 26 patients had osteomyelitis previous to the first operation.

TABLE 1.—*Cases Reported During Thirty Years*

	Total Number	Number of Deaths	Mortality Per Cent
Total cases reported	55	37	67
Complication of chronic frontal sinusitis	28	21	75
Complication of acute frontal sinusitis	27	16	60
Osteomyelitis recognized at first operation	26	14	54
Osteomyelitis after first operation	29	23	79

TABLE 2.—*Types of Infection*

	Total Number	Number of Deaths	Mortality Per Cent
Total cases	20	9	45
Pneumococci	1	0	0
Streptococci	5	5	100
Staphylococcus pyogenes-aureus	14	3	21

These statistics give sufficient evidence of the gravity of osteomyelitis. No further definite conclusions can be drawn.

In the literature the names of Luc, Knapp, Schilling, Tilley, Gerber and McKenzie stand out as contributors to this subject, and certain paragraphs which follow are taken in part from their papers. Individual references will not be given, in order to save space and time. However, for those who may be interested, the bibliography listed by Bulson is recommended.

A study of the case reports impresses one with the lack of bacteriologic study. Some of these reports of course were made before the days of widespread bacteriology, but even in those of recent years no mention of the bacteriologic observations is made in a large number. However, these data were given in 17 cases. Among these 17 cases and the 3 of my own, 1 was due to the pneumococcus (with recovery), 5 were due to streptococci (all the patients died), and 14 were due to *Staphylococcus pyogenes-aureus*, of which number 3 patients died, a mortality of only 21 per cent. There is enough difference between the last figure and the preceding ones to justify the opinion that the cases due to an infection with *Staphylococcus pyogenes-aureus* are not quite so serious as those due to other infections.

It is well known that osteomyelitis can be set up by various types of pyogenic bacteria, but of these *Staphylococcus pyogenes-aureus* is found most frequently and produces a fairly constant pathologic picture.

The cases due to syphilis and trauma are purposely excluded. This discussion is confined to the condition as a result of frontal sinus infection with *Staphylococcus pyogenes-aureus*. Also, cases of osteomyelitis due to other types of bacteria are excluded, because of the wide variance in their pathologic picture. Their consideration at this time would be confusing and lead too far afield.

ETIOLOGY

The direct cause is bacterial infection, usually the *Staphylococcus pyogenes-aureus* organism. The predisposing causes are:

1. Occlusion of the ostium by swelling of the mucous membrane with retention of pus under pressure, and an interference with the blood supply.

2. Age. Since the diploe is most marked in adolescence and early adult life, one would expect to find the disease most frequent at these periods, and statistics show that over half of the reported cases occurred during these years.

The process arose either spontaneously or secondarily to operative intervention. In regard to the latter factor, cases of osteomyelitis are reported after intranasal as well as external operations. Also, cases occurred after external operations when the cavity had not been curetted. However, any undue exposure of bone by elevation of the periosteum should be avoided, since the blood supply would necessarily be interfered with further.

Owing to the slow development of the frontal sinus there is a relative increase in the proportion of diploetic bone about the sinus during adolescence.

PATHOLOGY

When the foregoing factors are present, i. e., infection, occluded ostium, pus under pressure and diminished blood supply, areas of necrosis in the mucous membrane and thrombosis of the perforating veins extending through to the periosteum are found; hence death of the tissue occurs, owing to the lack of blood. From this point infection spreads through the diploe, preceded by thrombosis of the diploetic veins. Wherever death of the bone has occurred, pus and granulation tissue fill the diploe. The osseous elements suffer rapid destruction. Since the outer table is the most porous it is the first to break down, and pus is then found under the periosteum. This stage is soon followed by destruction of the vitreous inner table and by a collection of pus between the dura and the skull.

The typical pathologic lesions of osteomyelitis are now produced, characterized by a soft doughy swelling of the soft tissues due to edema and a collection of pus under the periosteum; by a slight inflammatory reaction, frequently unaccompanied by pain; by subperiosteal pus; and by bone destruction with the diploetic spaces replaced by pus and granulation tissue. The bone now has a worm-eaten appearance and is surrounded by a zone of thrombosed diploetic vessels. Pus has collected

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Bulson, A. E.: Osteomyelitis of the Frontal Bone as a Complication of Frontal Sinusitis, Tr. Am. Acad. Ophth. Otol. Laryng. Sect., St. Louis, 1925, pp. 103-143.

between the dura and the bone and subsequent sequestrums will be found in this area.

The first point of attack is usually in the neighborhood of the sinus, quite frequently just above the upper boundary. From this initial area septic thrombi are carried through the large diploetic veins to remote areas of the skull, where they lodge and produce a repetition of the initial lesion.

The diploetic veins are interesting in that they pass through suture lines; hence a secondary area of osteomyelitis may be found on the opposite side of the skull from the initial area, and frequently in a different bone.

When the rôle of these veins is considered one may well expect to find discrete areas of osteomyelitis at various points with no apparent connection, although at times the veins themselves become thrombosed and the path of transmission can be followed. This factor also accounts for the fact that the spread of osteomyelitis is usually upward over the vault rather than to the base of the skull.

The diploetic veins ramify through the diploe and terminate both externally and on the dura to communicate with the cerebral sinuses. It is probably through these connections that one gets thrombophlebitis of these sinuses. K. Eckstein collected six cases of thrombophlebitis of the superior longitidinal sinus after osteomyelitis, and I found this condition in one of the cases to be reported.

Fortunately the dura is a highly resistant membrane and even large collections of pus will be tolerated for a considerable time before leptomeningitis ensues, which is the most frequent cause of death in these cases.

Brain abscess is the next most frequent cerebral complication. Last of all is found thrombophlebitis of the intracranial sinuses, particularly the superior longitudinal sinus leading to pyemia and metastatic abscesses. Involvement of the cavernous sinus is followed by early death.

SYMPTOMS AND SIGNS

As a rule these symptoms and signs are self-evident. However, there are several points that should be stressed.

1. The insidiousness of the process, which produces a false sense of security on the part of the surgeon, so that when he does intervene the pathologic changes found are out of all proportion to the symptoms and signs.

2. The appearance of soft, doughy swellings about the skull.

3. Early signs of intracranial extension as evidenced by irritability, drowsiness or headache, and vomiting.

4. The persistance of a low grade septic temperature.

TREATMENT

1. All cases of frontal sinus disease should have, whenever possible, a preliminary bacteriologic study, so that the type of organism dealt with may be known.

2. In both acute and chronic cases, the simplest form of external operation should be employed that will satisfactorily handle the pathologic condition found, which means an operation founded on the principles advocated by Lynch: Resection of the floor, leaving the external wall with its periosteal covering intact, gentle curettage of the interior and intranasal drainage.

3. If the preliminary bacteriologic study reveals *Staphylococcus pyogenes-aureus* infection, the surgeon should be on the alert for possible extension to the skull and, should any such area present itself as previously described, it should be attacked radically.

When the bone is found to be involved, the skull should be resected well beyond the evident limits of the disease so as to include the area of thrombosed diploetic veins. Large areas of skull may be removed with impunity, for the defects will be made good largely by bone regeneration. Early recognition and radical attack are essential in controlling this serious complication.

4. After operation on the sinuses infected with *Staphylococcus pyogenes-aureus*, the head should be kept shaved or closely clipped, so that the early appearance of these osteomyelitic foci can be recognized.

5. Surgical solution of chlorinated soda is a valuable asset in treatment. It is injected through the rubber tube drain at two hour intervals in all cases after operation on the frontal sinus.

In two recent frontal sinus cases in which *Staphylococcus pyogenes-aureus* was found in pure culture, no osteomyelitis followed operation. In the three cases reported here, surgical solution of chlorinated soda was not used, which is interesting but not convincing. After resection of bone in these cases the wound is kept flooded with the solution, and further spread is definitely checked and healing hastened.

6. Careful observation of the patient's general condition, especially in regard to the red cell count and the hemoglobin content, for repeated transfusions when indicated plays a very important rôle in the treatment of septic conditions.

The cases to be reported were all due to an infection with *Staphylococcus pyogenes-aureus*. Two of the patients developed frontal lobe abscesses. Two developed pyemia, with metastatic abscesses, probably from thrombophlebitis of the superior longitudinal sinus. After a period of three years since the last patient was discharged, I feel justified in reporting them all as being well.

SUMMARY

1. Most cases of osteomyelitis of the skull that result from frontal sinus infection are due to *Staphylococcus pyogenes-aureus*.

2. When they are due to this type of infection, the pathologic picture is fairly constant.

3. Operation should be prompt and radical.

4. Surgical solution of chlorinated soda is advocated in their treatment.

REPORT OF CASES

CASE 1.—A youth, aged 17, had a radical operation on the right frontal for acute frontal sinusitis with perforation through the floor and orbital abscess. Healing was slow and complicated by repeated abscesses over the right forehead and temporal region due to areas of disseminated osteomyelitis. Each area was attacked in turn. The patient was discharged two months later apparently well, though still having a low grade septic temperature.

He returned to the hospital seven months later. He had been fairly well for two months but had been in bed for the past five months. The condition was becoming progressively worse.

On readmission an extensive necrosis of the frontal bone was found, empyema of the right side of the chest, and osteomyelitis of the first and second lumbar vertebrae. The latter two conditions were probably metastatic, for *Staphylococcus pyogenes-aureus* was found in pure culture in each place.

The empyema was drained, the diseased skull resected, and the lumbar abscess drained. Recovery was slow but uneventful. Following this rather serious illness, the patient remained well until he returned to the hospital two years later with several draining fistulas around the edges of the old cranial defects. These were opened and the sequestrums were removed.

Six months later he returned with still another fistula, but after a sequestrectomy, he has remained perfectly well for the last four years.

This patient did not come under my observation until his last admission and was neither treated with surgical solution of chlorinated soda nor operated on radically. A cure was obtained by conservative treatment, although it required four years to obtain this end. From the history it seems reasonable to assume that the pyemia and metastatic complications were a result of thrombophebitis of the superior longitudinal sinus. The Wassermann reaction was negative, and the culture showed *Staphylococcus pyogenes-aureus.*

CASE 2.—A boy, aged 15, had a radical frontal bilateral operation for acute frontal sinusitis with rupture into the left orbit. Culture showed *Staphylococcus pyogenes-aureus.*

Six days later the wounds were reopened and packed because the septic temperature continued, and the patient had gone from mental dulness to a semicomatose condition. Headache was severe, leukocytes were 20,000, reflexes hypersensitive, spinal fluid pressure was 200 mm. and clear, cell count 10, and the Wassermann reaction negative.

Three days later the leukocytes were down to 14,000, red blood cells 3,728,000, and hemoglobin 80 per cent. He was mentally more alert though still irritable. The temperature was ranging close to normal.

Two days after this he had several convulsions involving the right side, and considerable headache but normal eyegrounds. The blood culture was negative. Two days later he was much improved and mentally quite alert. A brain abscess was suspected. A doughy area has developed over the left frontal bone, showing a localization of osteomyelitis. However, operation was flatly refused by his parents.

Two weeks went by before consent for operation could be obtained, and his condition was becoming gradually worse, so that when the frontal bone was exposed a very extensive necrosis had taken place which called for rather wide resection to reach healthy dura.

The dura of both frontal lobes was covered with purulent granulations. Nicks over both frontal lobes were negative except for a small amount of serous fluid on the right.

His condition improved after this operation. However, four days later the headache returned, but exploration of the left frontal lobe was again negative. The eyegrounds were still normal.

The second exploration relieved his symptoms, and for the next two weeks he had no complaint other than an occasional headache. It had now been two months since his first operation. The white blood cells numbered 11,800, the red blood cells 4,520,000; the hemoglobin was 65 per cent; and the eyegrounds were normal.

Two weeks later violent headaches returned and bilateral choked disks were noted for the first time. The temperature remained subnormal. The pulse rate ranged from 70 to 90. There was a partial paralysis of the left side of the face and an ataxia of the left hand and arm. Three months after the first operation the right frontal lobe was explored by Dr. C. C. Coleman, and a large abscess drained. The culture showed *Staphlyococcus pyogenes-aureus.*

Following this operation recovery was uneventful; the tube was entirely removed two months later and the patient discharged in good condition. It has now been three years and the patient is still well.

A radical attack of the initial area of osteomyelitis prevented further spread of the infection, while the use of surgical solution of chlorinated soda greatly aided healing. Also, the brain abscess was suspected for two months before definite proof of its existence was given by choking of the disks and by the appearance of localizing signs.

CASE 3.—A boy, aged 15, had a radical right frontal operation for acute frontal sinusitis with rupture into the orbit of three days' duration. At operation the sinus was found to be filled with yellow pus, but the bony walls were intact. Culture revealed *Staphylococcus pyogenes-aureus.* A rubber tube drain was inserted and the wound was closed.

Four days later there was a doughy swelling over the forehead just above the upper limit of the sinus. This was opened and drained and the sinus opened and packed, because the temperature remained elevated and there was considerable pain and discharge.

His condition did not improve, and five days later a consolidation at the base of the right lung was found which was thought to account for the elevated temperature and the 24,000 white blood count. The Wassermann reaction was negative.

However, as the lung began to clear the symptoms continued, and two weeks after the first operation he developed a metastatic osteomyelitis of the right elbow, which was subsequently drained and culture showed *Straphylococcus pyogenes-aureus.*

Because he continued to have a septic temperature and because blood cultures were negative, two transfusions were given. His general condition improved somewhat.

Six weeks after the initial operation there developed a second area of osteomyelitis over the left parietal bone, similar to the initial lesion in the right frontal, so a third operation was decided on. When this area was opened, a very extensive necrosis of bone was found, necessitating removal of an area of skull 10 by 6 cm. The dura was covered with purulent granulations. A necrotic tract of bone was traced leading down to the old area, just above the right frontal. These two defects were connected by a gutter. Some pus was seen to escape through the granulations over the left frontal lobe, and brain abscess was suspected. However, the brain was not explored. Tubes were inserted and the wound packed open.

Several transfusions were given during the next two weeks, and his condition was greatly improved. The temperature remained normal and an occasional headache was the only complaint. The eyegrounds remained normal, and the wound healed nicely.

One month later, headache became more intense; there was drowsiness, loss of appetite and increased temperature. A roentgenogram showed two small sequestrums at the edges of old cranial defects. These were removed surgically.

Following this operation the patient's condition gradually improved; the wounds healed and he was discharged after nearly four months in the hospital, in good condition except for occasional attacks of nausea. The eyegrounds were still normal.

A month later he had become irritable, still nauseated at times, and there was considerable bulging over the old cranial defects. The eyegrounds were normal. He soon improved and was quite well until he was readmitted a month later, six months after his first operation.

At this time he was complaining of severe headache, vomiting and photophobia; he had become very irritable and mental aberrations had been noted. His temperature was subnormal, pulse 60 to 70, red blood cell count 3,400,000, white blood cell count 11,000. The examination otherwise was negative except for the bilateral choked disks.

A large frontal lobe abscess was found. This was drained by Dr. C. C. Coleman. The patient made a slow but uneventful recovery. The culture showed *Staphylococcus pyogenes-aureus.* After three years he is reported as being well.

The extension across the midline to the left parietal bone by means of the diploetic veins is interesting, likewise the metastatic osteomyelitis of the elbow, which was probably brought about by thrombophlebitis of the superior longitudinal sinus.

Here again was a slowly developing abscess, without definite localizing signs or choking of the disks for six months. This case furnished a good illustration of how careful a surgeon must be in his prognosis of cases of osteomyelitis of the skull.

ABSTRACT OF DISCUSSION

DR. FRANK R. SPENCER, Boulder, Colo.: Skillern classifies osteomyelitis of the skull as either circumscribed or diffuse. He says that the circumscribed type offers a better opportunity for a cure than the diffuse type. A number of authors have attributed osteomyelitis of the frontal bone, following a frontal sinus operation, to the fact that much of the anterior wall of

the frontal sinuses had been removed, thus opening the diploe of the frontal bone to infection. One of my patients showed staphylococci until shortly before death, when streptococci were found. The diagnosis was chronic panbilateral sinusitis improved under conservative treatment. A year later he returned complaining of the same symptoms. I did a bilateral Caldwell-Luc operation. Several operations for removal of the dead bone and evacuation of pus failed to give the desired improvement. *Staphylococcus pyogenes-aureus* was present. Roentgen examinations showed gradual extension of disease. Following three operations for evacuation of pus and removal of bone he improved for a few weeks but developed meningitis and died two months after his return. A few days before death, streptococci were present in the spinal fluid. He died from a streptococcic meningitis.

DR. ROSS HALL SKILLERN, Philadelphia: In my experience, all of these cases have arisen from operative intervention. Operators are apt to do too little rather than too much, and in every one of these cases I believe there had been left some pyogenic membrane, in contact with an open bony space, which gradually became absorbed until finally osteomyelitis developed. The author says "in both acute and chronic cases." I do not know whether he means acute and chronic cases, or acute and chronic osteomyelitis. If he means sinus cases, I agree; with the other I cannot. There are two forms of osteomyelitis, acute and chronic, and there are those between these two. The acute cases are very serious; in the chronic cases there is a chance of recovery. The only patients who recover are those who have *Staphylococcus aureus* involvement. The streptococcus cases and the pneumococcus cases are all fatal. How should these patients be treated? I wish I knew. I have had cases in which there were foci beginning in the macula. I institute drainage and the patients apparently get well. The autopsy shows that they get well; the bone recovers. Suppose I had gone on and resected a large portion of the bone; what would have happened? To my mind the same thing that did happen —the infection would spread and finally the patient would die. If I had another case I would treat it according to the nature of the conditions present. I am speaking of fistulous cases. I think treatment, after all, in these severe cases is not wide resection, but rather opening up, packing, and trusting to nature to bring about a cure.

DR. JOHN J. SHEA, Memphis, Tenn.: I have had three successful cases of osteomyelitis of the frontal bone which were cured. The bacteriology of osteomyelitis of the frontal bones is the same as that of osteomyelitis of the long bones. This severe complication may follow any operation, simple or radical, on a suppurating sinus, or it may occur spontaneously with infection of the frontal sinus. Usually it occurs whenever the diploe is opened and exposed to an infection against which insufficient immunity has not been established. The diploe is spacious in the growing skull, which makes the youthful frontal bone more susceptible to a spreading infection. Osteomyelitis occurring immediately after an operation is more likely to be serious and rapid in its destruction than when it does not appear for ten days or more.

DR. HOWARD C. BALLENGER, Chicago: In the case of a boy, aged 12 years, who had a meningitis secondary to a frontal sinusitis, both frontal sinuses were drained externally, with additional drainage of the intracranial cavity through the frontal sinus. The boy recovered from the meningitis but as an aftermath had chronic osteomyelitis of the frontal bones and also of the left parietal region. Roentgen examination at the present time shows a beginning sequestration. Both of these areas are discharging slightly. Occasionally, a spicule of bone is removed. I have not operated on him up to the present time but I am trying a staphylococcic bacteriophage. The organism recovered at all times is *Staphylococcus aureus*. This organism was obtained from the frontal sinuses, the spinal fluid, from the blood stream and from the nose. This case is of especial interest because the meningitis preceded the osteomyelitis, and the child apparently is not sick at present. He goes to school part of the day; he plays, etc. No one would know he had a big suppurating mass in the frontal region without seeing it in the roentgenogram. As to the etiologic factors, besides those mentioned by Dr. Woodward, I would add too early operative intervention in these acute sinusitis cases, especially in children.

DR. FLETCHER D. WOODWARD, Charlottesville, Va.: The point is to try to pick out those cases due to *Staphylococcus pyogenes-aureus* from the other infections and put them in one group, which follows a more or less definite clinical course, and in which treatment can be pretty well standardized; for cases due to other types of infection are usually hopeless. The difficulty is that no one man sees enough cases to find out much about this condition; therefore it will take the combined efforts of every one to work out this problem. All *Staphylococcus aureus* cases are apt to develop osteomyelitis whether or not an operation is performed. I believe the use of surgical solution of chlorinated soda will help to prevent it in certain cases. It certainly helps in the acute cases in which bone has to be resected. I would urge preliminary bacteriologic study, for to be forewarned is to be forearmed.

THE PROBLEM OF THE CLASSIFICATION OF NEPHRITIS *

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The classification of nephritis is a source of great confusion to students and practitioners of medicine. Most discussions of this subject take the form of a defense of some proposed classification. It has seemed to me that a simpler approach would be a statement and discussion of the problems involved rather than the presentation of some particular classification. This method should furnish a means by which any rational classification may be made intelligible.

There are many reasons why a satisfactory classification of nephritis is difficult to attain. In the first place, the kidneys are highly complex organs. This complexity becomes evident from a mere cataloguing of the various parts of the kidney more or less intimately associated with its function: the renal arteries and arterioles, including the afferent vessels; the glomeruli with their tufts of capillaries lined with endothelium and covered with flat epithelium; Bowman's capsule; the tubules with their four parts—proximal convoluted tubules, Henle's loops, and the distal convoluted and collecting tubules; the interstitial tissue; the veins, and the lymphatics. The functional unit of the kidney is a complicated sequence of structures consisting of the afferent vessel, glomerulus, Bowman's capsule and the long tortuous tubule to which it gives rise. Each of the component parts of this functional unit is itself a complex structure.

These various parts of the kidney are so interrelated and interdependent that changes in any one of them result in structural or functional changes in one or more of the others. For example, disease of the arteries and arterioles affects the function of the glomeruli and even induces structural changes in them. Alterations in the glomeruli are followed by changes in the tubules and vice versa. Certain changes in glomeruli and tubules, especially atrophy, lead to increase of connective tissue—replacement fibrosis and scar formation. Swelling of the epithelium in certain forms of degeneration, especially cloudy swelling, and the appearance of an abundant exudate in the interstitial tissue, can interfere seriously with the blood supply of the organ by increased internal pressure and thus

* From the Department of Pathology, Northwestern University Medical School.

disturb its function. Slowly developing reduction of arterial blood supply by disease of the arteries and arterioles and chronic venous hyperemia results in disturbed nutrition of the glomeruli and tubular epithelium and this results in all grades of atrophy to complete disappearance of these structures and replacement fibrosis. The number of mathematically and biologically possible combinations of changes that may occur among these dozen interdependent structures is great.

The known and unknown noxae that can damage the kidneys may be more or less specific for one or another of their various elements. Individual elements of any one type may not be equally susceptible to the action of the injurious agents, so that at no time are all of the glomeruli or all of the tubules affected to the same extent. These noxae, furthermore, may act continuously or remittently or only intermittently over varying periods of time. Variations in the nature, severity and mode of action of the agents capable of injuring the renal elements thus furnish a great number of variables, which increase the difficulties of clinical and pathologic classification of nephritis.

The number and variety of relatively simple pathologic processes that can occur in each of the renal elements are surprisingly large, and may be briefly catalogued without detailed description:

In the arteries and arterioles: embolism and thrombosis; simple arteriosclerosis, obliterating endarteritis, and hyperplastic-elastic intimal thickening.

In the glomeruli: thrombosis, accumulation of leukocytes, and proliferation of lining endothelium within the capillaries; proliferation and desquamation of the covering epithelium; hyaline, amyloid and even other forms of degeneration; and fibrosis. All of these changes alter the permeabilty of the glomeruli.

In Bowman's capsule: precipitation of substances that have escaped through the glomerular walls, especially fibrin; proliferation and desquamation of the lining epithelium; all of which may block the outlet. In addition pericapsular fibrosis will interfere with the expansibility of the capsule.

In the tubules: all the various regressive changes from the milder degenerations, such as cloudy swelling, to complete necrosis; partial or complete plugging of the lumens of the tubules with accumulated debris.

In the interstitial tissue: accumulation of exudates of all kinds from the serous exudate of simple edema to the purulent exudate of suppurative nephritis; proliferative changes leading to focal or diffuse fibrosis.

In the veins: thrombosis; passive hyperemia.

Nephritis, like other diseases, is not a static condition. The pathologic processes occurring in the kidneys are continually undergoing quantitative and qualitative changes. This may lead to a marked alteration in the clinical picture. The time element is therefore another complicating factor in the classification of nephritis. For example, because of the intimate interdependence of the different parts of the functional unit, destruction of a tubule is followed by destruction of the corresponding glomerulus, and vice versa, with resulting scar formation. Contraction of this scar tissue reacts unfavorably on the still functioning units. Hence a renal disease that begins primarily in the tubules ("nephrosis") or in the glomeruli ("glomerulonephritis") may, if the patient survives long enough, assume most of the clinical and many of the pathologic characteristics of that form of renal disease that begins primarily in the arterioles.

There are thus possible variations (1) in the different interdependent anatomic elements involved; (2) in the nature and in the intensity and mode of action of the injurious agents that may affect the kidneys; (3) in the number of relatively simple pathologic processes that may occur in the different anatomic elements of the kidneys, and (4) in the degree of chronicity of the disease. When all of these variables are considered, the number of mathematically possible combinations becomes so great that one is led to suggest that perhaps there are almost as many types of nephritis as there are patients with the disease.

And yet in spite of this welter of possibilities, certain well defined clinical-pathologic groups do stand out. The most satisfactory classification will perhaps be the most flexible and will be concerned chiefly with bringing together into somewhat loose groups those clinical and pathologic combinations that experience teaches are generally found together. The process of classification will therefore consist largely in sorting out clinical manifestations and pathologic changes and combining them into large rough groups sufficiently definite and distinct to be significant and sufficiently loose and flexible to be usable and practicable.

On this basis, two chief groups of nephritis are tentatively suggested:

1. A large group of diseases of the kidneys in which the secretory portions (glomeruli and tubules) are primarily affected. This group will include those clinical and pathologic conditions now generally classified as nephrosis, parenchymatous nephritis and glomerulonephritis. This entire group has certain well defined characteristics which vary with the chronicity and the extent of the disease. The vessels are not primarily involved and the circulation through the kidneys is not especially impeded until quite late in the disease, after a great number of glomeruli have been obstructed and destroyed. Increased blood pressure is therefore either absent or appears only late in the course of the disease.

The changes in the parenchyma are either retrogressive or inflammatory in nature, or combinations of both. As a result, the permeability of the physiologic units is increased. Not only do the usual nitrogenous waste products escape from the blood through the kidneys, but albumin passes through also. There is therefore little or no retention of waste products in the blood, phenolsulphonphthalein is excreted in approximately normal amount, and albuminuria is a constant finding.

The loss of albumin is important for several reasons. If the albuminuria is sufficiently great and exists for a sufficiently long time, the protein of the blood plasma is depleted and the osmotic pressure of the blood reduced. Both of these are important factors in the development of nephritic edema as recently shown by Barker and Kirk.[1]

The mechanism of the loss of albumin through the kidneys is an interesting problem. It appears reasonable to assume that, since it comes from the blood, most if not all of it escapes through the glomeruli. And yet the greatest loss of albumin occurs in the so-called lipoid nephrosis in which it is asserted that the tubular epithelium shows marked degenerative change while the glomeruli are apparently intact. How, then, is one to account for this extreme loss of albumin from the blood? Bell [2] has shown that definite changes can be demonstrated in the glomeruli in lipoid nephrosis. In

1. Barker, M. H., and E. J. Kirk: Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. 45: 319 (March) 1930.
2. Bell, E. T.: Am. J. Path. 5: 587 (Nov.) 1929.

his opinion "lipoid nephrosis is to be regarded as a form of glomerulonephritis in which the glomeruli are damaged but their capillaries are only partially obstructed so that they continue to function and tubular atrophy does not occur." This furnishes a simple and reasonable explanation for the marked albuminuria of lipoid nephrosis.

In various discussions of the permeability of the glomeruli, too little attention has been paid to the basement membrane and the covering epithelium and too much to the lining endothelium of the capillaries. The lymph from all organs contains albumin. Hence the endothelium of capillaries everywhere appears to be normally permeable to albumin except those in the alveolar walls of the lungs and in the glomeruli of the kidneys. In these two locations the outer surface of the capillary endothelium is covered by a layer of closely adherent flat epithelium separated in the glomeruli, at least, by a thin, hyaline basement membrane.[3] Epithelium everywhere has the functions of protection or secretion, or both, and is notably impermeable to solutions in general and colloidal solutions in particular. Miller [4] has shown that the exudate in the alveoli of the lungs escapes only through those portions of the walls of the alveolar capillaries from which the lining alveolar epithelium has become destroyed or desquamated. I do not know of any definite evidence that albumin escapes from the glomeruli through similar actual or functional breaks in their epithelial covering, but it is not an unreasonable surmise. It is possible, therefore, that the loss of albumin in the urine in the so-called nephroses and in glomerulonephritis may be the result of increased permeability due to alterations in the basement membrane, as shown by Bell [2] and to retrogressive changes in the epithelium covering the glomeruli rather than to changes in their endothelium which is presumably normally moderately permeable to protein. When both the endothelium and the epithelium of the glomeruli are sufficiently damaged, as in acute glomerulonephritis, then both albumin and red blood cells escape into the urine.

The gross and microscopic appearances of the kidneys in this group are variable. In general they are larger than normal. The size and color vary with the predominating type of change and the accompanying combinations of other changes in the secretory or parenchymatous tissue and the secondary changes in the interstitial tissue. As the disease progresses and more and more physiologic units are destroyed, a time will come when, if the patient survives long enough, both the clinical picture and the gross and microscopic appearance of the kidneys approach those of the second or vascular group; that is, clinically there is increased blood pressure and retention of nitrogenous waste products, and pathologically the kidneys show numerous (secondary) contractions.

This first group can be variously subdivided. Perhaps the simplest and most practical subdivision will be into acute, subacute and chronic types.

2. The vascular group, in which the primary changes occur in the arteries and arterioles: It is characterized clinically by high blood pressure; increasing retention of nitrogenous waste products; increased output of dilute urine with fixation of specific gravity; greatly reduced excretion of phenolsulphonphthalein and absence of edema (until late, when a cardiac edema may occur). The kidneys in this group are small and granular with innumerable small, often confluent, scars. There is diffuse thickening of the walls of the arterioles or arteries, or both, with narrowing of their lumens and atrophy or complete fibrosis of the corresponding glomeruli, with atrophy or complete disappearance of the associated tubules. McGregor [3] has shown that the glomerular lesion in this type is characteristic. "It consists of a decrease in size and simplification of the glomerulus with a marked thickening and wrinkling of the glomerular basement membrane. The arteriolosclerosis precedes and is related to the change in the glomerular basement membrane." This group has been designated as primary or genuine or arteriosclerotic contracted kidney, and chronic interstitial nephritis.

CONCLUSION

From the foregoing, it is evident that there can be no dogmatic, inflexible clinical or pathologic classification of nephritis that will apply to any case of the disease throughout its entire course. The acceptance of this point of view should improve the treatment of the disease. With an understanding of the problems involved and a knowledge of the numerous variables and innumerable possible combinations of pathologic changes that can occur in the kidneys, the physician will treat the individual patient instead of the name of a disease.

303 East Chicago Avenue.

3. McGregor, Leone: Am. J. Path. **5**: 545 (Nov.) 1929.
4. Miller, W. S.: J. Exper. Med. **38**: 707 (Dec.) 1923; **42**: 779 (Dec.) 1925.

THE VALUE OF SALICYLATES IN PREVENTION OF RHEUMATIC MANIFESTATIONS

REPORT OF A CONTROLLED CLINICAL STUDY *

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Statistical evidence in regard to the value of the salicylates as a preventive of the recurrence of rheumatic disorders is meager. It has been the custom in some clinics to give to patients with inactive rheumatic heart disease rations of salicylates in the hope that such a procedure might prove beneficial in the prevention of recurrences and exacerbations.

In the autumn of 1928, certain patients attending the cardiac clinic in the Harriet Lane Home of the Johns Hopkins Hospital were selected for the purpose of a study of the effect of constant salicylate ingestion. Patients with inactive rheumatic heart lesions were divided into two groups, one of which received salicylates daily for a period of six months; the other group received no salicylates and acted as a control. Similarly, children with potential heart disease, that is, children who had had one or more attacks of chorea or rheumatic fever but in whom there were no signs of heart disease, were divided into experimental and control groups. In an attempt to select groups that might be expected to do about equally well, care was taken not to include children with evidence of rheumatic activity or children who seemed likely to do badly. There was approximate equality of age, sex and color. A total of more than 100 children were started in the experimental and control groups. The experiment was conducted during the late fall, winter and spring. In the fall of 1929, similar groups were selected and in many instances children who had been in the experimental group the

* From the Department of Pediatrics, Johns Hopkins University School of Medicine and the Harriet Lane Home, Johns Hopkins Hospital.

previous year were placed in the control group, and vice versa. Salicylates were given in the form of acetylsalicylic acid, 20 grains (1.3 Gm.) daily in divided doses of 5 grains (0.3 Gm.). This form of salicylate was chosen because of its convenience in tablet form, its comparative palatability and its widespread usage. The ages of the patients varied from 5 to 14 years; the majority were from 7 to 12. An effort was made to procure faithfulness in taking the medicine, and children in the experimental group were followed closely for this purpose. Children in the control group were seen less frequently if they were doing well. It was hoped to determine what, if any, effect salicylate rations produce on improvement in general, gain in weight, bodily comfort and recurrences and exacerbations of rheumatic nature. As was to be expected, there were numerous children in each group who did not cooperate well enough to be included in the final analysis. A gratifying number, however, did cooperate satisfactorily.

During the two periods in which the experiment was conducted there were sixty-seven children who took the acetylsalicylic acid constantly and came to the clinic for frequent examinations. Thirty-eight of these had inactive rheumatic heart lesions, while twenty-nine had potential heart disease only. The control group consisted of seventy-nine children, forty-four of whom had inactive rheumatic heart lesions while thirty-five had merely potential heart disease.

RESULTS OF OBSERVATIONS

Recurrences.—Among the sixty-seven children in the salicylate group, recurrences of chorea occurred in four. It is only fair to state that three of the children would not have been analyzed in the salicylate group had the recurrence not taken place, because these three children took the salicylates only occasionally and spasmodically. Actually there was but one recurrence in a child who was faithful in the experimental medication. There were no recurrences of acute rheumatic endocarditis or pericarditis. One attack of subacute rheumatic fever, occurring in a boy who prematurely discontinued the salicylates, cleared up rapidly after the medication was resumed.

In the seventy-nine children in the control group there were nine recurrences of chorea, five of which were mild and four severe. One of the severe attacks of chorea was accompanied by rheumatic polyarthritis. In six other children there was return of joint pains severe enough to necessitate salicylate therapy. None of these could be classed as cases of rheumatic fever and are not recorded as recurrences, although one or two were borderline cases. The nine definite recurrences in the control group represent an incidence of 11.4 per cent, while the five recurrences in the experimental group amount to 7.4 per cent. There is no certainty as to the exact number of children who were faithful in taking the daily rations, but the single recurrence in such a patient represents an incidence which is probably not higher than 3 per cent.

Body Weight.—Exclusive of patients with recurrences, four children in the salicylate group lost weight, three failed to gain, sixteen gained slightly, seven gained moderately, and the remainder gained normally. Similarly, in the control group seven children lost weight, five failed to gain, fifteen gained slightly, five gained moderately, and the remainder had a normal increase. The advantage of the salicylate group is marked if the children with acute recurrences are included in the weight comparison. The weight comparison was made at the end of the experimental period. There were some children who gained weight temporarily only to lose it, and others who lost weight temporarily but showed a net gain at the end of the period. In general, children who did not show a normal increase in weight did not progress satisfactorily otherwise.

Heart Rate.—The heart rates of members of the groups at the end of the experimental period were compared with the rates at the beginning. Only the apparently constant and definite changes due to actual improvement were counted. Fifteen children in the salicylate group showed a definite improvement in the heart rate as compared with nine children in the control group. Three patients in each group, exclusive of those with rheumatic recurrences, showed an increase in the rate.

Heart Signs.—Cardiac murmurs disappeared in four children while taking the salicylates; in six others there was a very marked diminution of intensity in cardiac murmurs, while in three children with mitral insufficiency additional murmurs developed, characteristic in two of mitral stenosis and in a third of aortic insufficiency. One child developed a marked intensification of his cardiac murmur shortly after stopping the salicylate rations.

In the nonsalicylate group, cardiac murmurs disappeared in three children, became diminished in one and more intense in another, while murmurs characteristic of the development of mitral stenosis appeared in two.

There were no significant changes in other heart signs with the exception of changes in the size and sounds accompanying the development of the additional lesions noted.

General Comfort.—In the salicylate group there were ten children whose general comfort could not be considered satisfactory. Five had occasional muscle and joint pains, one had frequent joint pains, while three of them were hyperactive, nervous and generally uncomfortable. Sixteen children in the control group were unsatisfactory from the point of view of physical complaints. Exclusive of those with acute recurrences there were six whose rheumatic manifestations were severe enough to call for salicylate therapy, two who complained more or less constantly of muscle and joint pains, five whose complaints were occasional, and three who were hyperactive and restless but who could not be considered as having chorea.

Functional Classification.—The functional classification (according to the criteria of the Heart Committee of the New York Tuberculosis and Health Association) was changed to indicate improvement (either from class IIa to class I or from class I to potential) in five patients in the salicylate group, and to show retrogression in one. In the control group there was improvement in the functional classification in two patients and retrogression in one.

DIRECT COMPARISON

Fifty patients were in the experimental group one year and in the control group the next year, or vice versa, rendering it possible to get a direct comparison of the welfare and progress of these children during six months while taking salicylates, in contrast to a similar period of time and season without the medicine. Four recurrences of chorea and two of rheumatic joint involvement occurred in patients in the control group who had previously done well in the salicylate group. One recurrence of chorea occurred in the salicylate group in a child who had previously done well in the control group. Exclusive of the recurrences there were

five children who gained weight much more normally while taking salicylates than when in the control group, while two children gained weight more satisfactorily in the control group than while taking salicylates. Two other children who failed to gain weight in the control group gained weight moderately well in the experimental group. There seemed to be no particular difference otherwise except in the matter of general comfort, concerning which several children were more satisfactory in the experimental group than in the control group. Several children did poorly while in either group, the salicylates seemingly having no effect on their failure to gain weight, their general comfort or their heart rates. Possibly a larger dosage might have been of benefit in some of these cases. Several of the patients who needed salicylates therapeutically were given a larger amount. In one child only was the acetylsalicylic acid ill borne by the stomach.

SUMMARY AND CONCLUSIONS

Sixty-seven children with potential heart disease and inactive rheumatic heart disease were given daily rations of 20 grains (1.3 Gm.) of acetylsalicylic acid for a six months' period. A control group consisted of seventy-nine children with similar potential and acquired rheumatic heart lesions. Fewer recurrences of chorea occurred in the experimental than in the control group. The control children did not do as well as the experimental in the matter of gain in body weight, improvement in the heart rate, general bodily comfort and actual physical capacity as judged by the functional classification based on ability to carry on normal activities without discomfort.

There was no evidence of any effect of the drug on the slowly progressive development of mitral stenosis, nor can such be conceived. The number of rheumatic recurrences was too small and the time too short to allow accumulation of evidence in regard to any possible effect of the medicine in preventing endocarditis as a sequela of chorea or other rheumatic manifestation, but speculation is aroused as to the reason for the moderate preponderance of diminutions and disappearances of cardiac murmurs among the patients who were receiving salicylate rations.

Improvement in bodily comfort seemed to play a part in allowing a more satisfactory gain in body weight. It was strikingly evident that normal gain in body weight was an accompaniment of general well being. Almost without exception the children with recurrences of chorea lost weight previous to the recurrence or gained only a slight amount. Frequently these children were subject to more or less troublesome joint and muscle pains and general discomfort. The acetylsalicylic acid seemed to be the factor which enabled a number of the children to gain weight. Apparently a child who gains weight normally is unlikely to develop chorea. Thus, by increasing the physical comfort of the child and by making it easier for him to gain weight there seems to be an indirect effect of the drug which results in fewer attacks of chorea.

The analysis as recorded seems to show that there is a definite advantage in giving daily rations of salicylates to children who represent actual or potential instances of rheumatic heart disease. The evidence is neither marked nor conclusive but indicates that similar study in a larger number of patients over a longer period of time is worth conducting. It will be particularly interesting to observe the effect of salicylates on cardiac murmurs in such children and on the recurrence of chorea.

211 Angell Street.

Clinical Notes, Suggestions and New Instruments

EMPHYSEMA OF THE HEAD AND NECK COMPLICATING TONSILLECTOMY

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A review of the literature gives one the impression that emphysema of the head and neck following tonsillectomy occurs infrequently. The youngest case found in the literature is that of a boy, aged 7, reported by Stein,[1] and the only other cases reported occurring in children are those of a boy, aged 10, and a girl, aged 12, described by Richards.[2]

The following three cases occurred within a period of one year:

CASE 1.—J. F., a boy, aged 2 years, presented no abnormal conditions other than large infected tonsils and a moderate amount of adenoid tissue. He was a neurotic child and he screamed with fear when the anesthetic was administered. Following the removal of the right tonsil, considerable swelling of the right side of his face and scalp was noticed. Crepitation was present throughout this swollen area, and crepitation was readily elicited in the neck and upper quarter of the anterior chest wall. The left tonsil was removed. The patient made an uneventful recovery; the emphysema gradually subsided and completely disappeared within five days.

CASE 2.—M. L., a girl, aged 4 years, a slender, only moderately nourished child, presented no abnormal conditions other than cryptic tonsils from which cheesy material could readily be expressed. The upper deep cervical glands were readily palpable, each about the size of an ordinary marble. The patient was unusually quiet while taking the anesthetic and did not cry at all. Directly following the removal of the right tonsil, moderate swelling of the face was noticed. It extended up as far as the zygomatic arch. Crepitation was readily elicited over this area, and also in the upper part of the right side of the neck. The left tonsil was removed. Recovery was uneventful and the emphysema completely subsided within a period of three days.

CASE 3.—J. E., a boy, aged 2½ years, presented enlarged cryptic tonsils and a moderate mass of adenoid tissue. The upper deep cervical glands were readily palpable. There were no other abnormal conditions. Because of several attacks of otitis media during the previous winter, it was though advisable to remove the tonsils and adenoids, a probable focus of infection. The child cried only a little while taking the anesthetic. Directly following the removal of the right tonsil, considerable swelling involving the area of the right parotid gland was noticed. The swelling was the size of a small plum and it was tense. No crepitation was elicited. In a period of about one minute however, crepitation was present in a small area caudad to the swelling; directly, it was elicited also over the swollen area and in the upper part of the right side of the neck. The left tonsil was removed. This patient also made an uneventful recovery. The emphysema completely subsided and the swelling disappeared within four days.

In these cases ether was administered, and it was given by the open cone method. As soon as the patient was in the second stage of anesthesia, the cone was removed. The mouth was held open with a mouth gag and ether further administered with a pump. The hook-shaped metal tip through which the ether fumes entered the mouth was in all cases suspended from the right side of the mouth. The ether was blown against the right mucous buccal membrane. The tonsils were removed with the LaForce-Sluder instrument.

Stein states that the superior constrictor muscles of the pharynx and buccinator fascia which make up the bed of the tonsillar fossa are very thin, and in part deficient in the child. Puncture through this thin tissue permits air to penetrate into a large cavity containing the great vessels loosely invested by

1. Stein, Simon: Surgical Emphysema Following Tonsillectomy, Laryngoscope **33**: 785 (Oct.) 1923.
2. Richards, L. G.: Subcutaneous Emphysema Complicating Tonsillectomy, Boston M. & S. J. **189**: 203 (Aug. 9) 1923.

areolar tissue, which extends superficially over the head, neck and chest. Richards also mentions the possibility of air entering by way of perforation of the tonsillar fossa bed; he describes the possibility of straining and coughing resulting in air forced under the visceral pleura over the surface of the lung reaching the hilus, whence it is reflected up along the great vessels into the mediastinum, and then along facial planes into the subcutaneous tissue of the neck. It is quite possible with the loud crying and straining in case 1 that air was forced from the lung along the areolar tissue surrounding the great vessels. The swelling of the right side of the face may have been present but unnoticed before the tonsil was removed. With case 2 it is quite unlikely that air was admitted from the lung, as this child was so quiet while taking the anesthetic. This might have been the result of perforation of the tonsillar bed. Case 3, however, possibly presents a third manner in which emphysema may occur. It appeared that the air (ether and air) first entered the parotid gland, being forced into it through Wharton's duct, by means of the ether spray, and from the parotid gland it diffused into the surrounding tissues.

It is interesting to note that in all three cases the disturbance occurred on the right side.

SUMMARY

Three cases of emphysema complicating tonsillectomy are here presented. It seems possible that this condition may be brought about as follows:

1. The air may enter the tissue following perforation of the tonsillar fossa bed—possibly case 2.
2. The air may enter the tissues following perforation of lung vesicles—possibly case 1.
3. It is possible that air may enter the tissues after being forced into Wharton's duct and thence diffused—possibly case 3.

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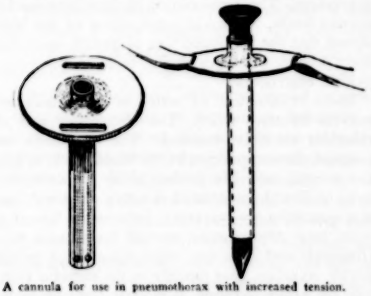
A CANNULA FOR USE IN THE TREATMENT OF SPONTANEOUS OR ACCIDENTAL PNEUMOTHORAX *

I. A. BIGGER, M.D., NASHVILLE, TENN.

In spontaneous or accidental pneumothorax with increased tension, it is frequently necessary to relieve the intrapleural pressure. In certain cases, aspiration suffices. In other cases, the air reaccumulates so rapidly that it is necessary to provide for its continuous escape. This is best accomplished by inserting an intercostal tube and using one-way valve drainage.



A cannula for use in pneumothorax with increased tension.

The cannula here illustrated was devised to replace the usual drainage tube. It is a silver tube 4 mm. in diameter and 4 cm. in length, with a flange near the outer end and perforations near the inner end. The flange has two slits, one on each side of the tube. The cannula is fitted with a steel trocar.

The length of the cannula projecting through the chest wall may be varied by placing different thicknesses of sterile gauze beneath the flange before it is inserted. Continuous escape of air is insured by perforations in the wall of the tube if the end should come in contact with the lung. The cannula is held in place by sterile tape, which is passed through the perforations in the flange and attached to adhesive strips well away from the wound.

A one-way valve effect is obtained by placing a thin piece of rubber dam over the outer end of the tube, which is elevated slightly above the flange for this purpose. If the gauze dressings are applied loosely over this, air can readily escape.

The cannula has been left in place for seven days in one case and for four days in another without evidence of infection.

* From the Department of Surgery, Vanderbilt University School of Medicine.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

PLANT'S MAGNESIA WAFERS.—Wafers, each containing magnesium hydroxide, $Mg(OH)_2$, 0.3 Gm. (4.64 grains) compressed with the addition of sucrose and starch and essential oils as flavors.

Actions and Uses.—Plant's magnesia wafers are used as an alkaline laxative and antacid.

Dosage.—From two to four wafers, followed by a glassful of water. The magnesium content of each wafer is approximately equivalent to that of 4 cc. of magnesia magma U. S. P.

Manufactured by the Arner Company, Buffalo (The Plant Products Company, Cleveland, Ohio, distributor). U. S. Patent 1,694,341 (Dec. 4, 1928; expires 1945). U. S. trademark 239,341.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

ANTIPNEUMOCOCCUS SERUMS COMBINING TYPES I AND II PNEUMOCOCCI, AND REFINED AND CONCENTRATED ANTIPNEUMOCOCCIC SERUM (LEDERLE) NOT ACCEPTABLE FOR N. N. R.

The Council has accepted for New and Nonofficial Remedies preparations of antipneumococcic serum for type I pneumococcus infection and at present this is the only type in which the efficacy of serum has been sufficiently established to warrant general use. There is some evidence that type II serum concentrated by the Felton method is of service if given early and in large doses, but there are other reports which indicate comparatively little difference between the treated cases and the untreated controls. The Council holds that type II is still in the experimental stage and therefore is not acceptable for New and Nonofficial Remedies.

The Lederle Antitoxin Laboratories presented Refined and Concentrated Antipneumococcic Serum (Lederle) for consideration by the Council as "a solution containing the refined and purified antibodies of Type I and Type II pneumococcus prepared by immunizing horses against Type I and Type II pneumococci . . . refined and concentrated by the method described by Lloyd D. Felton." In consideration of the present available evidence, the Council was obliged to declare all serum preparations combining type I and type II pneumococci, including Refined and Concentrated Antipneumococcic Serum (Lederle), unacceptable for New and Nonofficial Remedies.

The Simpler Laboratory Tests.—If every physician was so much at home with the technic of the simpler tests that it was quicker for him to apply them than to wonder whether they were worth while applying, and if he understood how to interpret these tests and gain the maximum information from them, the problem of the relation of the physician to the laboratory would be largely settled.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 27, 1930

THE EFFECTS OF LOSS OF GASTRIC JUICE

Whenever the intake of fluid is for any reason restricted so that this, plus the water that may become available through metabolic processes, is less than the amount lost through the various channels of elimination, the conditions favorable to the production of anhydremia are created. Prolonged thirst has long been recognized as a menace to life. Often there are uncompensated and unsuspected losses of water, through the alimentary tract as well as the more familiar excretory paths of the lungs, kidneys and sweat glands, which produce a shortage in the water store of the organism. As Marriott [1] has pointed out, severe anhydremia occurs when there is voluntary refusal of water for prolonged periods, for instance in the case of persons mentally deranged. It occurs in individuals exposed to the heat of the desert and in those working in such locations as deep mines and boiler rooms. Vomiting brought about from any cause results in a greatly diminished fluid intake and often in a considerable degree of anhydremia. This is especially noted in the case of infants suffering from pyloric stenosis, as no absorption of water takes place from the stomach and relatively little passes beyond the pylorus. Any form of high intestinal obstruction leads to a similar result. In the presence of diarrhea, considerable amounts of water may be lost by way of the stools. Such losses are particularly marked in Asiatic cholera and in the choleriform diarrheas of infancy. In such cases anhydremia rapidly develops and may be severe enough to lead to death in a relatively short period. The amount of water lost by the stools may be enormous and greatly exceed the amount eliminated from the body by all other ways combined. As a result of the water loss in severe diarrhea the body weight may be decreased to the extent of 20 per cent or more within one or two days' time. Marriott has further pointed out that severe anhydremia is especially likely to occur in infants. This is due in part to the fact that they have a high water requirement which must be covered. Furthermore, the infant is entirely dependent on others for the administration of water and may be offered an insufficient amount. Newly born infants nursing at the breast and receiving no fluid from other sources frequently become somewhat desiccated. In any infant the presence of infection is likely to lead to refusal of food, vomiting and diarrhea, with a resulting anhydremia.

Only recently, however, has attention been focused further on the loss of important inorganic elements, which may accompany the loss of water from the body. This is notably true in certain sorts of severe diarrhea and in vomiting. The juices that pour into the intestine contain chlorides that are usually reabsorbed in the lower reaches of the bowel and hence not lost permanently to the organism. So far as vomitus consists of gastric secretion, chloride ions are removed from the body in an undesired way. Without replacement, the chloride content of the blood may become lowered to the point of pathologic manifestations. The importance of electrolytes for the maintenance of the usual water content of the blood and tissues is at length being firmly established. Loss of hydrochloric acid by vomiting leaves the organism with a relative surplus of base, thus affording a tendency towards alkalosis.

That these are not merely hypothetic situations has recently been demonstrated anew on animals by Dragstedt and Ellis [2] at the University of Chicago. When a total loss of gastric juice was produced through a continuously draining fistula from a stomach detached from its connections with the rest of the gastro-enteric tract, death inevitably ensued in a few days. The symptoms observed in the order of their appearance were loss of weight, anorexia, decreased urinary secretion, muscular weakness and profound depression. The amount of food and water taken gradually decreased until none whatever was taken during the last two days. The suppression of the urinary secretion followed *pari passu* with the decreased water intake. In each case the deviation from the normal was in the direction of depression. The temperature likewise remained within normal limits. Chemical examination of the blood has shown that the continued loss of gastric juice from the body produces changes similar to those occurring after pyloric obstruction.

Mere replacement of water in such cases will not provide effective relief. The electrolytes and notably chlorides must be restored. The symptoms may be relieved, the composition of the blood made to approach the normal, and life prolonged by intravenous injections of liberal amounts of Ringer's solution. Considerable quantities are necessary, because the loss of gastric juice may approximate several liters in a day. As Dragstedt and Ellis say, when these large volumes of gastric secretion pass directly to the exterior instead of into the lower intestine, it is clear that the body loses considerable amounts of water and inorganic salts, chiefly chloride. Restoration of the normal chemical state of the blood plasma is the important factor. These results are not merely of academic interest. As the Chicago investigators have pointed out, failure of reabsorption of gastric juice in the lower intestine is the chief cause of death in high intestinal and pyloric obstruction, acute dilatation of the stomach, paralytic

1. Marriott, W. M.: Anhydremia, Physiol. Rev. **3**: 275 (April) 1923.

2. Dragstedt, L. R., and Ellis, J. C.: The Fatal Effect of the Total Loss of Gastric Juice, Am. J. Physiol. **93**: 407 (June) 1930.

ileus in general peritonitis, gastrocolonic fistula, duodenal and gastric fistulas, and profuse persistent vomiting from other causes. A number of such cases have been successfully treated by them by simple replacement therapy with intravenous injection of physiologic solution of sodium cloride.

VITAMIN A AND CAROTENE

Vitamin A is one of the earliest recognized food factors now known to be as essential to well being as are proteins, other energy-yielding nutrients, and inorganic salts. In the course of the preliminary studies that were devoted to ascertaining the distribution of this fat-soluble substance in natural foods, it became apparent that various materials rich in vitamin A also exhibited the color characteristic of so-called carotinoid pigments. This was true not only of egg fat, butter and carrots but also of Indian corn, or maize. In fact, investigation has repeatedly demonstrated an apparent parallelism between the color of corn and its content of vitamin A, "white" corn being comparatively devoid of the A factor. Green leaves known to be rich in vitamin A usually have their carotinoid pigments obscured by the preponderance of the chlorophyll with which such vegetation is richly endowed. Suggestions were early made that vitamin A and carotene (or carotin, as it is frequently designated) may be identical; at least they are closely associated and have somewhat similar solubilities. From a scientific standpoint it would be highly significant if the identity should be clearly established, for carotene is a crystallizable substance, of undoubted chemical individuality, and likely to be amenable to analyses that will reveal its precise chemical structure.

The problem seemed to be approaching a real solution when it was demonstrated not long ago, notably by Euler and his co-workers in Stockholm, that pure carotene may function as vitamin A does in the diet. The yellow pigment evidently served in small doses to cure the effects of vitamin A deficiency in animals as well as to avert the onset of the characteristic symptoms. However, there were incongruities in the whole story. Liver oils that are notably rich in vitamin A may be pale; and this is equally true of the concentrates of the fat-soluble vitamins of the same oils. Furthermore, the solubilities of carotene and vitamin A are unquestionably not identical; and the two materials differ in some of their physical properties. Hence a recent investigator has insisted that it is necessary to account for the possession of a common physiologic activity by two divergent sources, and in the first place to insure that the activity of carotene is not due to the presence of the liver oil factor in an absorbed state, or in some other condition that would alter its normal solubility properties.

The hypothesis of a contamination of carotene with the active principle no longer seems tenable. The yellow pigment, even after great purification, has been found to be physiologically effective at daily dosage levels down to less than 0.004 mg. per rat. Even so-called concentrates of active oils do not exceed this. The latter, like cod liver oil, give characteristic color reactions that tend to parallel their vitamin potency in colorimetric intensity. Moore [1] has further shown in studies at the Nutritional Laboratory in Cambridge, England, by colorimetric investigations that the activity of the pigment certainly cannot be attributed to direct contamination with vitamin A, or at least with the chromogen associated with that factor in liver oils. The same investigator [2] has supplied the further information that carotene may be converted to vitamin A in vivo. When animals were depleted of this vitamin by suitable deficiency diets, their livers failed to yield oil that would give the antimony chloride color reaction so characteristic of potent liver oils. The cure of the deficiency by means of carotene feeding led to the development of the characteristic chromogen in the livers of the restored animals. In other words, the yellow pigment was converted into vitamin A and stored in the liver just as happens when cod liver oil is used as the curative agent. These results represent a great step in advance in the field of vitamin biochemistry.

INTERRELATIONSHIP BETWEEN SPLEEN AND PARATHYROID

Some years ago the late S. J. Meltzer pointed out what is now a recognized principle in vertebrate biology, that there is a large factor of safety in the make-up of the body. In other words, there is normally an excess of practically all kinds of functioning tissue for the maintenance of those interrelated equilibriums the resultant of which is a sine qua non for life. The active mass of practically any of the paired organs—suprarenals, gonads, kidneys, lungs—can be reduced by half without marked interference with normal function and with compensatory hypertrophy usually the only discernible structural change. But of still greater interest are the evidences of reciprocal activity of organs which have obvious functions more or less unrelated to one another. On this basis the thyroid, testes and suprarenals can be grouped together and the islands of Langerhans and suprarenal glands form another pair. The extreme of such sympathetic reaction is reached in the vicarious activity of one tissue for another, as in the case of extramedullary formation of blood cells and the parathyroid hypertrophy in the absence of vitamin D. It is not surprising, therefore, that as methods of chemical analyses are refined and additional skilful surgical procedures are devised, more of these unexpected instances of organic reciprocity should be discovered.

In a recent experimental study, Brougher [3] has produced evidence of another case of apparent cooperation

1. Moore, T.: The Absence of the Liver Oil Vitamin A from Carotene, Biochem. J. **24**: 692, 1930.
2. Moore, T.: The Conversion of Carotene to Vitamin A in Vivo, Biochem. J. **24**: 696, 1930.
3. Brougher, J. C.: Am. J. Physiol. **92**: 648 (April) 1930.

of glands. It was shown that removal of spleen in dogs was followed by a decrease in calcium content of the serum. When desiccated spleen was given to splenectomized animals, the low serum calcium was raised almost to the normal level although similar treatment of a group of parathyroidectomized dogs had no effect in augmenting the serum calcium level. Another group of dogs which had recovered from the tetany following parathyroidectomy was subjected to splenectomy. The content of calcium in the serum was thereby further decreased and in some of the animals tetany reappeared. The variations in concentrations of calcium in the serum produced by removal of the spleen or by feeding desiccated spleen were not as great as those caused by parathyroidectomy or by parathyroid extract but were defined and consistent.

As a result of the pioneer experiments of Hanson [4] and the further work of Collip and others, the relation of the parathyroid glands to tetany and to calcium concentration in the serum is well understood so far as the facts are concerned, although the explanation is not yet entirely clear. From the studies here discussed it appears that the spleen is likewise concerned in calcium metabolism. Furthermore, it appears that the results might even be interpreted to mean that, in the absence of the parathyroid glands, the spleen can take over their function of preventing tetany. These intricate relationships between organ systems illustrate the ends to which the organism as a whole will go in order to preserve the vital equilibrium; furthermore they indicate, in some measure, the inherent difficulties in outlining effective therapy.

GRADIENT OF CAPILLARY PERMEABILITY

In current theories of immunity it is implied that all organs, tissues and cells of the animal body are equally permeable to any given antigen, topographic distribution being determined solely by hypothetic hereditary specific intracellular avidities. For three decades, therefore, immunology has ignored the possibility that relative permeability may play a part in immunologic adaptation. With the newer immunology,[5] however, in which specific antibodies are not pictured as desquamated preformed "receptors" but as entirely new biochemical complexes presumably synthesized as a result of interactions between injected antigens and normal tissue components, relative permeability becomes a primary factor in topographic distribution and subsequent antibody synthesis. Immunologists, therefore, welcome the current researches of Drs. Rous, Gilding and Smith [6] of the Rockefeller Institute, the most important feature of which is their ingenious technic, adaptable to so many basic investigations.

In their study of vascular permeability, the Rockefeller Institute physiologists used selected nontoxic dyes of graded molecular size or graded diffusibility. These were studied in solutions isotonic with and of the same hydrogen ion concentration as human blood. These solutions were injected intravenously into guinea-pigs and rabbits, and the relative rate of diffusion through vascular walls was followed microscopically. To prepare a site for microscopic observation an oval muscle area was exposed on the side of the abdomen and a plate of clear flexible mica inserted over the muscle. The area was illuminated by a carbon arc, the light being cooled by filtration through Magnus' fluid. A white background was obtained by underlaying the local muscle with a curved strip of celloidin inserted into the peritoneal cavity.

Vastly different absolute and relative rates of outward diffusion were observed with dyes of different diffusibility. With diffusibilities approximately those of normal foodstuffs (e. g., patent blue V), the dye passes so rapidly into the extravascular tissue spaces that special methods of slowing the diffusion are necessary to determine the relative rate. This slowing is done by lowering the carotid pressure. After such slowing, an initial pigmented mist is seen to appear about the terminal arterioles, before the neighborhood of the capillaries and venules is colored. With slightly less diffusible dyes (e. g., bromphenol blue) the dye first appears in the spaces surrounding the capillaries. With relatively nondiffusible dyes (e. g., congo blue) the extravascular mist appears first about the terminal third of each capillary, the tissues adjacent to the arterioles and the proximal two thirds still remaining uncolored.

This relative rate of diffusion is but little altered by drastic circulatory changes, muscular activity, plethora, shocklike conditions and therapeutic hypertension. The Rockefeller Institute scientists, therefore, conclude that in the circulation supplying the skeletal muscles thus far studied there is an inherent "mounting gradient of vascular permeability," least effective along the terminal arterioles, increasing precipitously with transition into capillaries, mounting rapidly along the capillaries and attaining a maximum just before the capillaries unite to form venules. They believe that this gradient is a purposeful nutritional and excretory mechanism equalizing nutritional and excretory opportunity in muscle fibers supplied by long parallel capillaries, the relatively nonpermeable proximal end of each capillary serving as a conservation mechanism, insuring adequate functions for the distal end. That this is the essential purpose of the Rous gradient is indicated by the fact that in the urinary bladder, supplied by interlacing capillaries, often running in opposite directions, no capillary gradient is demonstrable.

The experiment is a technical *tour de force* of which physicians may well be proud. Basic research of this character stimulates future theories and leads eventually to practical therapy. Immunologists, particularly, will await further refinements of the Rous technic applicable to individual parenchymatous cells.

4. Hanson, A. M.: Mil. Surgeon **54**: 76 (Jan.) 1924.
5. Jordan, E. O., and Falk, I. S.: The Newer Knowledge of Bacteriology and Immunology, 1928, chapter 81, p. 1078.
6. Rous, Peyton; Gilding, H. P., and Smith, F.: The Gradient of Vascular Permeability, J. Exper. Med. **51**: 807 (May) 1930.

Current Comment

THYROXINE AND THE THYROID

The isolation of an individual chemical substance, thyroxine, from the thyroid gland, the demonstration of its unique physiologic potency, the determination of its exact chemical structure, and the synthesis of the active hormone in the laboratory are scientific contributions of great merit. They indicate the power of modern methods of investigation in promoting progress in the fields of medical research. In the case of the thyroid hormone, however, there has been some doubt as to whether the physiologic activity of the gland is fully represented by the action of isolated thyroxine. In his monograph on thyroxine, Kendall [1] has stated that it produces qualitatively every physiologic effect of desiccated thyroid; quantitatively it is somewhat less active. He suggests that the total activity of the thyroid gland is brought about by thyroxine which exists in the gland in the form of this compound as isolated, and in addition in a slightly altered form, "active" thyroxine. Other investigators have shared the view that the physiologic activity of the thyroid gland cannot be entirely accounted for by the thyroxine that it contains. It is true that the latter is not the only iodine compound thus far isolated from the gland. Diiodotyrosine has been prepared from it but has been found to be inactive so far as any effect on metabolism is concerned. Experiments by Harington and Salter [2] at University College Hospital Medical School, London, seem to make it clear that there is no occasion to assume any real differences between so-called active thyroxine and the potent component of the gland as ordinarily isolated. They have succeeded in separating peptide-like fractions of unquestioned potency by enzymatic digestion of thyroid tissue. These are effective when administered by mouth or intravenously. Harington and Salter point out that the physical properties of thyroxine are such as to make it highly probable that the absorption of this substance after oral administration would be inefficient and erratic; the digestion product, on the other hand, possessing as it does a much wider range of solubility, might well be absorbed almost quantitatively. The London biochemists discard the existence of thyroxine in the thyroid in an "activated" form except that, owing to its optical activity and possibly also owing to the fact that it is in peptide combination, it can produce an effect greater than that of the free recemic compound. By digestion, *l*-thyroxine has now been isolated from the gland. Harington and Salter conclude that, taking into account the errors of the physiologic method and the essential difficulties of obtaining accurate therapeutic comparisons, it is surprising that even an approximate parallelism can be observed between the action of the thyroid gland or thyreoglobulin or an equivalent amount of free *l*-thyroxine. They regard it as probable that the actual substance which the thyroid secretes into the blood may not be free thyroxine but a relatively simple peptide containing this compound. Such a product would doubtless be produced by the digestion of ingested thyroid.

1. Kendall, E. C.: Thyroxine, New York, Chemical Catalog Company, 1929.
2. Harington, C. R., and Salter, W. T.: The Isolation of *l*-Thyroxine from the Thyroid Gland by the Action of Proteolytic Enzymes, Biochem. J. **24**: 456, 1930.

THE VENOM OF THE HONEY BEE

It is only rarely that the sting of a honey bee becomes the professional concern of a physician. When it does, he is likely to institute "symptomatic treatment" and to follow traditional advice regarding such an emergency. It is quite common to apply weak alkalis—solutions of ammonia or alkaline carbonates—to the affected skin area, presumably on the assumption that the venom of the insect is acid in character and that its local irritant features will be mollified by neutralization. Studies by Essex, Markowitz and Mann [1] of the Mayo Foundation on the venom collected from honey bees indicates that it resembles the venom of rattlesnakes [2] in several striking respects. The bee poison is markedly hemolytic and the perfused mammalian heart is promptly incapacitated by it. Like histamine, the bee venom is an endothelial or "capillary" poison and a marked stimulant of smooth muscle. On the circulation it exhibits a depressor action that is peripheral in character. In the opinion of the latest investigators the venom of the honey bee deserves to be designated as a general protoplasmic poison.

AMYOTONIA IN CHILDHOOD

In a recent address to the Bristol Medico-Chirurgical Society, Dr. Richard C. Clarke [3] dealt at some length with the signs of exhaustion in childhood. Exhausted children are seen, he believes, much more frequently than in former days, perhaps on account of the strenuous upbringing to which children are subjected. Too often the condition remains unrecognized by physicians as well as by teachers and parents. The most prominent symptom is lack of muscular tone in both the voluntary and the involuntary muscles. The posture is typical: the "child standing over itself" with protruding abdomen and winged scapulae. Hyperextension of the elbow will be seen if the child is told to stand up with the arm stretched out. In advanced cases the face is expressionless, though in slighter cases grimacing is not uncommon. Symptoms referable to the cardiovascular system are common: pallor and attacks of faintness. Accentuation of the cardiac sounds and systolic murmers may be present. The alimentary system also is frequently affected: there may be constipation alternating with diarrhea. The appetite is often poor or capricious. There may be abdominal tenderness. These cases must be distinguished from subacute rheumatism and from the chronic intoxications. The children are often nervous and frequently bed wetters. They are liable to undergo unnecessary operation for chronic appendicitis. The treatment consists of rest, both physical and mental. A change of environment may be necessary to secure this. Overanxious parents are a common factor in the etiology of the disease.

1. Essex, H. E.; Markowitz, Jacob; and Mann, F. C.: The Physiological Action of the Venom of the Honey Bee (Apis Mellifera), Am. J. Physiol. **94**: 269 (July) 1930.
2. The Physiologic Effects of Rattlesnake Venom, Current Comment, J. A. M. A. **94**: 1765 (May 31) 1930.
3. Clarke, R. C.: The Exhausted Child, Lancet **2**: 223 (July 26) 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

September 29. Cleaning up the Milky Way.
September 30. Cleaning up the Milky Way.
October 4. Philosophy for the Sick.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays from 12 to 12:05 p. m.

The program for the week is as follows:

September 29. Unlocking Lockjaw.
September 30. Water Casualties.
October 1. Half Alive.
October 2. Banishing the Blues.
October 3. A Fallacy Fades.
October 4. Sensible First Aid.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Violations of Medical Practice Act.—Charles Lew, Chinese herbalist, at Redlands, pleaded guilty, July 29, to violation of the medical practice act, and paid a fine of $100. Mary Poe, Paso Robles, a "chirothesian," pleaded guilty, July 11, to violation of the medical practice act, and was sentenced to serve ninety days in the county jail. The sentence was suspended on condition that she surrender her chirothesian certificate. D. J. Bussell was found guilty of violation of the medical practice act, July 31, at San Francisco, and was sentenced to pay a fine of $100 or serve twenty days in the city jail.

Poisoning from Cream Custard.—A large number of cases of food poisoning have been reported in various localities of the state which have been traced to contaminated cream custard products sold over bakery counters. An investigation of sixty-two poisoned persons residing in small cities and rural districts adjacent to a city where cream pies were manufactured reveals that the cream custard used became contaminated. The patients were seized with acute gastro-intestinal symptoms, but no deaths were reported. The public is warned that during extremely hot weather it is difficult to prevent the accidental contamination of cream custard, as it is an ideal medium for the growth of bacteria.

Society News.—The Santa Barbara County Medical Society was addressed, August 11, by Dr. Albert H. Elliott, Jr., on "The Mechanism in the Production of Nephritis," and Dr. William H. Eaton, "Local Labor Union Contract for Medical Care."——The western division of the American Urological Association was addressed in Los Angeles, September 18-20, among others, by Drs. Ernest Granville Crabtree, Boston, on "Urinary Infection in Pregnancy," and Nathaniel G. Alcock, Iowa City, on "Urologic Diagnosis in Relation to General Abdominal Diagnosis." The papers were given in a joint meeting with the Los Angeles County Medical Association. A session was addressed also by Drs. Harry H. Wear, Denver, on "Comparative End-Results Following Prostatectomy on Private and General Hospital Patients"; Miley B. Wesson, San Francisco, "Cancer of the Prostate"; Alexander H. Peacock, Seattle, "Prostatectomy: Primary Closure"; Granville MacGowan and W. Parker, Los Angeles, "A New Surgical Procedure for Relief of Annular Stricture of Phallic Urethra"; Francis H. Redewill, San Francisco, "Prevention of Calculi and Ulcers with Resultant Strictures in the Urinary Tract of Prepartum and Postpartum Infants," and George M. Fister and Eugene H. Smith, Ogden, "Aberrant Renal Vessels in Children."

CONNECTICUT

Society News.—The sixth Clinical Congress of Physicians, held at New Haven, September 16-18, was addressed, among others, by Drs. John H. Wyckoff, Jr., University and Bellevue Hospital Medical College, New York, on "Treatment of Pneumonia"; Edward W. Archibald, McGill University, Montreal, "Surgical Treatment of Pulmonary Tuberculosis"; Abernethy Benson Cannon, New York, "Eczema in Children"; Ernest A. Codman, Boston, "Shoulder Injuries," and David Riesman, Philadelphia, "Blood Pressure."

GEORGIA

Society News.—The Fourth District Medical Association was addressed at Columbus, September 11, by Drs. George P. Kinnard, Newman, on "Training Duties of U. S. Army Flight Surgeon"; Beecher Duvall, Atlanta, "Facts and Fallacies about the Rectum"; George S. Murray, Columbus, "Heart Problems in General Practice"; Charles W. Roberts, Atlanta, "Factors Involved in Abdominal Diagnosis with Special Reference to Appendicitis"; Leroy W. Hubbard, Warm Springs, "Poliomyelitis and Its After-Care."——The Fulton County Medical Society was addressed, September 18, by Dr. Forrest M. Barfield, on "Acute Intestinal Obstruction."——The Fifth District Medical Society will be addressed, October 1, at Douglasville, by Drs. Henry Homer Allen, Decatur, on "Typhoid Fever in Children"; Jack C. Norris, on "Typhoid Fever: A Study of One Hundred Cases"; Cyrus W. Strickler, "Treatment of the Pneumonias"; Vernon E. Powell, "Pellagra," and James R. McCord, "Conservative Obstetrics." The speakers are from Atlanta.

ILLINOIS

Hospital News.—Ira C. Copley of Aurora is reported to have given to the Aurora Hospital Association a building fund of $1,000,000, a site valued at $150,000, and an endowment fund of $1,295,000.

Society News.—The Adams County Medical Society was addressed, September 15, at Quincy, by Dr. Frank Cohen on "The Diagnosis of Allergy."——The Douglas County Medical Association was recently addressed by Dr. John R. Neal, Springfield, who spoke on legislative matters concerning the medical profession.——The Madison County Medical Society was addressed, September 5, by Dr. Harry G. Greditzer, St. Louis, on prostatitis.——Dr. C. Ellsworth Black, Jacksonville, addressed the Morgan County Medical Society, September 11, on "Appendical Abscesses"; Dr. Warner H. Newcomb spoke on purpura, and Drs. William H. Weirich and Frank Garm Norbury, medical observations abroad.

INDIANA

Tuberculosis Courses for Physicians.—The Indiana Tuberculosis Association has announced short courses in tuberculosis for physicians. In order to make it possible for physicians to attend these courses without much loss of time, teaching centers will be established at Healthwin Sanatorium, South Bend, September 30 and October 1; Boehne Tuberculosis Hospital, Evansville, October 1-2; Sunnyside Sanatorium, Oaklandon, October 2-3; Lake County Tuberculosis Sanatorium, Crown Point, October 7-8; Indiana State Sanatorium, Rockville, October 7-8; Irene Byron Sanatorium, Fort Wayne, October 21-22, and William Ross Sanatorium, Lafayette, October 28-29. There will be no fee attached to the courses. The Indiana Tuberculosis Association, Indianapolis, wishes to ascertain the number of physicians who will enroll.

Society News.—The Whitley County Medical Society was addressed at Columbia City, August 19, by Dr. Miles F. Porter, Jr., Fort Wayne, on birth control.——A general discussion on "The General Practitioner and the Specialist" was held, August 13, by the Noble County Medical Society at Wolf Lake.——The Grant County Medical Society was addressed, August 27, by Dr. Maynard A. Austin, Anderson, on "Sex Problems in Medicine."——The Tippecanoe County Medical Society was addressed at Lafayette, September 11, by Dr. Max A. Bahr, Indianapolis, on "Mental Mechanisms in Health and Disease."——The Elkhart County Medical Society was addressed, September 4, by Drs. Joseph W. Gale, Madison, Wis., on "Acute Empyema," and William D. Stovall, Madison, "Primary Fungus Infection of the Lung."——The Jay County Medical Society was addressed, September 5, by Dr. Henry O. Mertz, Indianapolis, on "Infection of Kidneys and Bladder in Infants and Adults."——The thirty-sixth annual conference of state health officers with the state board of health was held at Fort Wayne, September 22-24. The program included a general public session, addressed by Surg. Allan J. McLaughlin of the U. S. Public Health Service; Dr. Felix J. Underwood, state

health commissioner of Mississippi, talked on "Results Accomplished by Full Time County Health Departments." The discussions embraced the supervision of milk supplies, protection of public water supplies, prevention of communicable disease, sanitation, maternity and infant hygiene, and the report of vital statistics with especial reference to Indiana being admitted to the morbidity registration area of the United States.——The Lawrence County Medical Society was addressed, August 6, by Dr. Edwin N. Kime, Indianapolis, on "Diathermy and Quartz Light Therapy in General Medical Practice."

KANSAS

Brinkley's License Revoked.—The license of John R. Brinkley, the "goat gland specialist" of Milford, was revoked, September 17, by the Kansas Board of Medical Registration and Examination. The Missouri Board of Health is said to have announced that it has cited Brinkley on a charge of unprofessional conduct, growing out of complaints from residents of that state who represented themselves as former patients at the Milford Hospital. Dr. James Stewart, secretary of the Missouri board, is reported to have said a hearing would be held in Kansas City, Mo., October 9.

KENTUCKY

Society News.—The Nelson County Medical Society was addressed, August 28, at Boston, by Dr. Frank P. Strickler, Louisville, on "Goiter Operation Under Local Anesthesia."——The Christian County Medical Society was addressed, August 20, by Drs. William D. Haggard, Nashville, on "Diagnosis and Surgery of Ulcer and Cancer of the Stomach," and J. H. Pritchett, Louisville, "Everyday Pediatrics."

MARYLAND

Another Case of Typhus.—The health department of Baltimore is investigating a death attributed to typhus fever at the City Hospital, in order to trace the source of infection. This is the sixth death from typhus fever reported in Maryland since April 1, when a mild outbreak of the disease began generally along the Atlantic Coast.

Personal.—Dr. William Ross Cameron, Martinsburg, health commissioner of Berkeley County, W. Va., has been appointed public health officer for Hagerstown. He is a native of Nova Scotia and a graduate of Dalhousie University, Halifax.——Dr. Lloyd U. Lumpkin has been appointed visiting surgeon to the Baltimore city hospitals by the supervisors of city charities.

Smallpox Report for Maryland.—Only four states have reported fewer smallpox cases than Maryland for the years 1928-1929, according to the U. S. Public Health Service. The disease in Maryland decreased from twenty-two cases in 1928 to eight cases in 1929, and none have been reported in 1930. No child may enter a county school unless vaccinated successfully. The state health department furnishes the vaccine virus free.

MICHIGAN

Hospital News.—An increased allowance of $10,000 a year has been made for the personnel of the state tuberculosis sanatorium at Howell. Dr. George L. Leslie, who has been resident surgeon at the Herman Kiefer hospital, Detroit, was added to the staff. Several new buildings have been added to the institution, including a nurses' home, costing $60,000, and physician's residence, costing $25,000. A new wing under construction at a cost of $200,000 will add 150 beds to the hospital.

Personal.—Dr. Roger J. Hanna, Kalamazoo, was recently selected as superintendent of the new $250,000 tuberculosis hospital in Jackson County. Dr. Hanna has been city physician of Buffalo and was in charge of the tuberculosis hospital in Kalamazoo for the past two years.——Dr. Colonel B. Burr, Flint, was tendered a complimentary dinner, September 16, at Benton Harbor, by the officers and council of the Michigan State Medical Society.——Dr. Wellington B. Huntley, formerly medical superintendent of the Michigan State Sanatorium for Tuberculosis at Howell, will return to Ionia as house physician at the Michigan State Reformatory, succeeding Dr. Roy C. Lintner, resigned.

Placement of Cardiac Patients in Industry.—The Cardiac Committee of the Wayne County Medical Society has concerned itself in helping the heart patient to find his place in industry. Questionnaires were sent to industrial corporations to ascertain the number of available positions for cardiac patients, their willingness to employ heart patients referred to them after competent medical examination and recommended for a suitable type of work. The reaction was unfavorable, owing in most part to the fact that insurance companies would not permit the employment of patients because of increased risk. An effort to obtain legislative relief exemption from liability due to sudden death in cardiac cases was unsuccessful. The same problem had been up before the department of labor and industry, in the case of persons with hernias; the law does not discriminate between old, young, well or sick persons.

Society News.—The Wayne County Medical Society was addressed, September 23, by Dr. Frederick A. Coller, Ann Arbor, on "Postoperative Pulmonary Complications," illustrated by lantern slides.——Dr. Carl A. Hedblom, Chicago, addressed physicians at Grand Rapids, September 10, on "The Diagnosis and Treatment of Lung Abscess and the Diagnosis and Treatment of Bronchiectasis." The program also included the display of a one-reel medical film showing the segmentation of the fertilized rabbit's ovum.——The Upper Peninsula Conference on Public Health and Tuberculosis was held at Marquette, September 11-12, under the auspices of the Michigan Public Health Association and the Michigan Tuberculosis Association. Drs. Allan J. McLaughlin, U. S. Public Health Service, spoke on "Rural Hygiene"; Clyde C. Slemons, state commissioner of health, "Control of Communicable Disease"; Stuart Pritchard, Battle Creek, "Tuberculosis in Childhood"; John W. Towey, Powers, "The New Tuberculosis Law"; Bruce H. Douglas, Northville, "Public Control of Tuberculosis"; Carl E. Buck, D.P.H., department of health, Detroit, "School Hygiene"; Lillian R. Smith, state department of health, Lansing, "Maternal Mortality," and John F. Norton, Ph.D., Detroit, "Relation of the Laboratory to the Public Health Worker and Practicing Physician."

MINNESOTA

Society News.—The Minnesota Academy of Medicine was addressed, September 10, at Minneapolis by Drs. Alexander Stewart, St. Paul, on "Observations on Serotherapy in Scarlet Fever"; Arthur A. Zierold, Minneapolis, "Morphine as a Diagnostic Agent," and Wallace H. Cole, "Leg Lengthening of the Tibia in Infantile Paralysis."

Herbalist Convicted.—It is reported that Lester Starr, who was arrested at Spring Grove, August 16, charged with practicing healing without a basic science certificate, was sentenced, September 9, to sixty days in jail. Starr was one of a group of "Indian doctors" who sold roots and herbs in Fillmore and Houston counties for the past two months. Their charges ranged from $10 to $60 per person, and it was estimated that they took in $4,000.

MISSOURI

Society News.—A joint meeting of the Kansas City Southwest Clinical Society and the Wyandotte County and the Jackson County medical societies was addressed, September 9, by Dr. Moses Swick, New York, on "Indications for Intravenous Pyelography."

Hospital News.—The state and the eleemosynary board have announced that only Missourians will be offered positions at the state hospitals. The change of policy is an attempt to give employment to worthy people of the state who are victims of drought and unemployment.——The new seven story, 200 bed building of the Evangelical Deaconess Home and Hospital, St. Louis, was recently dedicated.

NEBRASKA

Society News.—The annual meeting of the Twelfth Councilor District Medical Society, held September 19, at Scottsbluff, was addressed by the following Lincoln physicians: Drs. Earl V. Wiedman, "Practical Points in the Care of the New-Born and Feeding During Infancy"; Harry E. Harvey, "Management of Prolonged and Difficult Labor"; Karl S. J. Hohlen, "Practical Points on Management of Surgical Brain Conditions"; Philip H. Bartholomew, "Control of Communicable Diseases," and Roy B. Adams, secretary, "The State Association." Dr. Chauncey M. Pierce, Chadron, talked on "Rocky Mountain Spotted Fever." Dr. Frank B. Young, Gering, acted as toastmaster at the banquet and introduced Dr. Arthur L. Miller, Kimball, who talked on "Our Changing Medical Times."

NEW YORK

Society News.—The Medical Society of the County of Albany was addressed, September 19, by Drs. Max M. Peet, Ann Arbor, Mich., on "Head Injuries"; Burton J. Lee, New York, "Surgery and Irradiation in the Treatment of Cancer," and Thomas Parran, Jr., state health commissioner, "Medical Economics."

Traveling Laboratories Used in Milk Survey.—In the study of the milk supply of the state authorized at the last legislative session to determine the sources of the state milk

supply, two mobile laboratory units will be used. They consist of two busses of the street car type in which the inner space, 7 feet wide by 18 feet long each will house laboratory facilities and equipment and include hot and cold water, connected with a small storage tank under air pressure, an electric incubator, operated by storage batteries, an autoclave, a sterilizing oven, a Babcock tester, microscopes and other units.

New York City

Society News.—A group of thirty-five physicians and surgeons of the Cuba Medical Society recently arrived in New York for three weeks' tour of eastern medical centers.——Sir James Purves-Stewart of London spoke on "Multiple Sclerosis: Its Etiology and Treatment," at the Auditorium of the Psychiatric Institute, Medical Center, September 26.——Dr. Hans Zinsser will deliver the Carpenter lecture before the New York Academy of Medicine, October 29, on "Immunity, General and Local."

Hospital News.—One gram of radium has recently been shipped by the Radium Belge, official government agency of Belgium, for use in the city hospitals. The radium was sent first to the Bureau of Standards at Washington to be weighed and inspected. The gram, worth about $70,000, was lent to the city without cost. This will supplement the one gram of radium at Bellevue Hospital, and the two grams at Welfare Island hospitals.——The city penitentiary on Welfare Island will be converted into a large hospital as soon as the Riker's Island penitentiary is completed. The new hospital will take care of from 1,500 to 2,000 patients.

Diseases Investigated at Rockefeller Institute.—The Rockefeller Institute for Medical Research announces that the following diseases are being studied for which certain kinds of patients are desired: cases of chickenpox, showing a possible relationship between herpes zoster and varicella, and cases of measles just prior to the appearance of the rash; rheumatic fever patients with symptoms of acute rheumatic polyarthritis, subcutaneous nodules, chorea and carditis accompanied by polyarthritis or nodules, especially when early manifestation of symptoms appear; patients of all ages, but especially old ones in the more advanced stages of heart failure, and those in the early stages of arterial hypertension; young patients with acute or chronic nephritis of either the edematous or nonedematous type; and patients with acute lobar pneumonia, or other acute infections of the respiratory tract. Patients with pneumonia should be referred early in the disease so that, in suitable cases, serum treatment and the administration of oxygen may be commenced as early as possible.

NORTH CAROLINA

Society News.—The Alamance-Caswell Medical Society was addressed, August 12, among others by Dr. Wilburt C. Davison, dean of the Duke University School of Medicine, Raleigh, on "Heart Disease in Children."

Personal.—Dr. Hurbie A. Taylor was recently named acting state health officer, succeeding the late Dr. Charles O'H. Laughinghouse. Dr. Taylor has acted in the capacity of state epidemiologist and chief deputy health officer.

Licenses Restored and Revoked.—The license of Dr. Memory F. Boyles, which was revoked, June 1, 1926, for violation of the Harrison Narcotic Act, was restored, June 16. The state board of medical examiners revoked the license of Dr. Garrett D. Gardner, Asheville, June 16, for violation of the Harrison Narcotic Act. He is appealing to the superior court to have the license restored.

OHIO

Society News.—The Summit County Medical Society was addressed at Akron, September 2, by Dr. Morris E. Davis, Chicago, on "Forceps Operation."——The Second Councilor District Medical Society was addressed at Dayton, September 24-26, by groups of two physicians on each day. On Wednesday, Dr. George W. Crile, Cleveland, discussed "The Thyroid Gland and Its Clinical Relations," "Surgical Treatment of Gastric and Duodenal Ulcer," and "Management of Patients Seriously Sick"; Dr. Stewart R. Roberts, Atlanta, Ga., spoke on "Essential Hypertension, Well Established," "Hyperthyroidism with Accent on the Thyroid Heart Previous to Operation" and "The Nervous Heart Without Organic Heart Disease, Particularly if Vague Pains in the Left Precordium Are Present." On the second day, Dr. James R. McCord, Atlanta, Ga., spoke on "Fundamentals in the Mechanism and Management of Normal Labor and the Puerperium," "Toxemias of Pregnancy," and "Puerperal Sepsis"; Dr. Stewart R. Roberts "Agranulocytosis: Clinical Onset, Symptoms, Treatment," "Failing Heart and Its Realization," and "The Heart and Circulatory Complications of Pregnancy." Sessions on the last day were addressed by Dr. Willis C. Campbell, Memphis, Tenn., on "Operative Measures in the Treatment of Low Back Pain," "Ununited Fractures," and "Arthroplasty of Knee," and Dr. Walter C. Alvarez, Rochester, Minn., spoke on the "Diagnosis of Gastro-Intestinal Disease," and "Treatment of Organic and Functional (Digestive) Disease."——The Northwestern Ohio Medical Society will be addressed at Toledo, October 7, at the morning session, by Drs. John Alexander, Ann Arbor, on thoracic surgery; Ferris Smith, Grand Rapids, "Asthma—Etiology and Cure"; Ralph Pemberton, Philadelphia, "Arthritis." The afternoon program will consist of papers by Drs. Irvin W. Potter, Buffalo, on "Abdominal Cesarean Section"; Charles P. Emerson, Indiana University School of Medicine, Indianapolis, "Functional Neuroses Which the Internist Sees"; William C. Quinby, Boston, "Urinary Lithiasis"; Frederick A. Coller, Ann Arbor, "Carcinoma of the Stomach," and Donald C. Balfour, Rochester, Minn., "Recent Developments in the Management of Lesions of the Stomach and Duodenum." The evening address will be by Dr. Chester W. Waggoner, president of the Ohio State Medical Association, on "The Importance of the Practice of Medicine to a Community."——The Shelby County Medical Society was addressed, September 5, by Dr. Benjamin A. S. Stephenson, on "Infant Mortality," in which he presented a graph showing the rate of mortality for the past five years and also premature labors. The society will be addressed, October 3, by Dr. Harry A. Lindsay on "Puerperal Mortality."——The Hancock County Medical Society was addressed, September 4, at Findlay, by Drs. Burt G. Chollett on "Orthopedic Conditions in Children," and Leo P. Dolan, "Kidney Complications."

PENNSYLVANIA

Impostor Convicted.—The state board of medical education and licensure recently secured the prosecution of Charles Russell Cox, who is alleged to have been posing as a graduate from a class A medical college. It was reported that he was receiving patients as a result of his broadcasting and was attempting to cure them by dietetic means. The broadcasting took the form of an advertisement for a cereal company. Cox was paroled for six months with a proviso that he cannot use the title "doctor" nor engage any patients for treatment and that he refrain from broadcasting.

Society News.—The South Hills Branch of the Allegheny County Medical Society was addressed, September 18, by Dr. Henry M. Ray, Pittsburgh, on "Clinical Significance of Spinal Fluid Examination, with Special Reference to Neurosyphilis."——Dr. Frank Norman Wilson, Ann Arbor, Mich., gave an address on "Cardiac Weakness and Cardiac Failure" at the Annual Mercy Day at Mercy Hospital, Pittsburgh, September 24.——The Fayette County Medical Society was addressed, September 4, by Dr. Charles H. LaClair, Uniontown, on "Management of Labor."——The Montgomery County Medical Society was addressed, September 3, at Norristown, by Drs. J. Newton Hunsberger, on "History of the Montgomery County Medical Society" and Joseph Colt Bloodgood, Baltimore, "Value of Preventive Medicine in Protection Against Cancer." Dr. Bloodgood's paper was discussed by Dr. John B. Deaver, Philadelphia.——The Northampton County Medical Society was addressed at New Easton Hospital, September 19, by Drs. John H. West on "The Thymus Problem Based on a Study of Four Hundred and Seventy-Five Mediastinal Shadows," and Paul R. Correll, "The Pennsylvania Compensation Law in Relation to the Physician."——Members of the Lehigh, Northampton and Bucks counties medical societies will be guests of the Allentown State Hospital for the fourteenth annual inspection and joint meeting, October 14. The scientific program will consist of a symposium on neurosyphilis.——The Clarion County Medical Society was addressed recently by Dr. Frank Vierling, Knox, on medical conditions in China.——The Lehigh County Medical Society, at a recent meeting, was addressed by Dr. Joseph O. Aronson, Philadelphia, on immunization against tuberculosis with B C G.

SOUTH CAROLINA

Personal.—Dr. Pierre G. Jenkins has been appointed lecturer and Dr. Robert B. Rhett instructor in ophthalmology, in the Medical College of South Carolina.——Dr. William A. Carrigan, Society Hill, has been elected health officer for Darlington County to succeed Dr. Archie B. Hooton, who resigned to accept a similar position in Maryland.

Society News.—The Columbia Medical Society was addressed, July 14, by Drs. Olin B. Chamberlain, Charleston, on "Cerebral Vascular Disease," and Charles Fred Williams,

Columbia, on "Introspection as Result of Medical Examination." August 11, the society was addressed by Dr. George H. Bunch, Columbia, on "Tuberculosis of the Spleen," and Julius H. Taylor, Columbia, on "Pathology of Acute Osteomyelitis," with demonstrations.——The Ridge Medical Society was addressed, August 18, by Dr. Hugh E. Wyman, Columbia, on urinary derangements.

TEXAS

Hospital News.—The Sealy and Smith Foundation for the John Sealy Hospital, Galveston, has announced a two year fellowship in roentgen ray to be available to graduates of class A medical schools who have served one year's internship. Inquiries should be directed to Dr. Jesse B. Johnson, director of roentgenology, John Sealy Hospital, Galveston.

Itinerant Food Faddists Visit Dallas.—The state board of medical examiners has called attention to the notorious itinerants Gilbert Thayer and Jacob D. Levine, who recently visited Dallas, where they engaged rooms in a hotel to see patients and give treatments. The scheme adopted by these men was to hold "classes" to which "lectures" were delivered. The "students" were subdivided into types according to the color of the hair, the eyes, or some such distinguishing bodily feature, and "diet lists" were sold for each particular classification or type at sums varying from $10 to $50. In the case of professional students to whom alleged diagnostic education was given, a fee of $100 was charged. Levine styles himself an "irologist." He claimed that by looking at the eyes of a baby he could foretell a disease from which the child would suffer twenty years hence; or, by looking at the eyes of an adult, tell what diseases he had twenty years ago. Levine never attended a medical school. He is said to have claimed the titles doctor of chiropractic, physiotherapy and spondylotherapy. He was convicted of violation of the medical practice act in Chicago in 1923.

VERMONT

Society News.—At a recent meeting of the Windham County Medical Society at Bellows Falls, addresses were made by Drs. James Z. Naurison, Springfield, Mass., on "Diseases of the Heart," and Charles F. Dalton, Burlington, secretary of the state board of health, "Undulant Fever."

VIRGINIA

Society News.—The Patrick-Henry County Medical Society was addressed, July 12, at Patrick Springs, by Drs. Joseph T. McKinney, Jr., Roanoke, on "X-Ray Diagnosis of Diseases of the Gastro-Intestinal Tract," and Jesse M. Shackelford, Martinsville, "The Acute Abdomen."

Personal.—Dr. Clarence W. Trexler, formerly of the department of medicine of the University of Virginia, is now medical superintendent of the Mahelona Memorial Hospital, Kealia, Hawaii.——Dr. Henry W. Decker, Richmond, has been appointed to succeed the late Dr. Schuyler B. Moon on the staff of the Virginia Home for Incurables.

WISCONSIN

Charity in Private Practice.—The Medical Economics Committee of the Medical Society of Milwaukee County has recently compiled some information on charity work being done in and out of private medical practice in an effort to ascertain the methods used in the distribution of free service. Of the 640 questionnaires sent out to members, 220 were returned; 120 of these stated that they kept no records of charity work, while 60 did. One hundred and twenty-five members stated that they cared for 11,532 patients (or an average of ninety-three patients each) during 1929, and 133 state that the total value of this service was $136,268 (or an average of $1,024.72 each). Eighty-nine physicians holding clinical appointments rendered 467 hours (or an average of thirty-four days each), in free service. Charity service rendered by 77 physicians amounted to $206,076 (or an average of $2,676.13 each); 47 physicians stated that 27 per cent so-called charity patients were able to pay, and one physician stated that he charged all patients and that a surprising number of poor patients wanted to and did pay what they owed. Sixty-three physicians stated that their loss in bad accounts was 12.6 per cent, while 86 figured it to total $78,658 (or an average of $942.62 each). The membership in private practice rendered free service to over 57,000 patients, valued at $680,000, and in free dispensaries, clinics and hospitals, service valued at $620,000, or a total of $1,300,000 based on regular medical fees.

CANADA

Personal.—Dr. Isobel T. Day, Vancouver, B. C., was elected president of the Federation of Medical Women of Canada at its recent meeting in Winnipeg.——Dr. John C. B. Grant, for eleven years head of the department of anatomy of the Medical Faculty of the University of Manitoba, has been appointed head of the anatomy department at the University of Toronto.

Hospital News.—The new 336-bed building recently added to the Toronto General Hospital is designed to replace the former private pavilion. The total capacity of the hospital is now more than 1,000 beds. A considerable portion of the main floor is reserved for the accommodation of guests of patients. There are ten surgical rooms, and five additional operating rooms, and two floors for obstetric cases. The equipment includes a thermostatically controlled saline heater and piping from a central store room for anesthetic gas.

Canadian Medical Association Election.—At the sixty-first annual meeting of the Canadian Medical Association, held in advance of the British Medical Association meeting at Winnipeg, officers elected for 1931 are: president, Dr. William Harvey Smith, Winnipeg; president-elect, Dr. Alexander S. Monro, Vancouver; chairman of council, Dr. Alfred T. Bazin, Montreal; treasurer, Dr. Frank S. Patch, Montreal; secretary, Dr. Thomas C. Routley, Toronto. In a discussion of health insurance, Dr. Alfred Cox, secretary of the British Medical Association, said that 90 per cent of the profession doing health insurance work in England are in favor of it. The Post-Graduate Committee reported that it had during 1929 provided 379 speakers, who gave 730 addresses before a total attendance of 26,287 physicians. The next meeting of the association will be held in June, 1931, at Vancouver.

Society News.—The Manitoba Medical Association, which met at Winnipeg, August 25, elected the following officers: president, Dr. Henry O. McDiarmid, Brandon; vice presidents, Drs. Christopher R. Rice and Hubert D. Kitchen; secretary, Dr. F. W. Jackson; treasurer, Dr. Malcolm R. MacCharles, all of Winnipeg. The next annual meeting will be held at Winnipeg during September, 1931.——The Rockefeller Foundation has sent an organizer to assist in the establishment of medical centers at Red Deer and High River, Alberta. The Rockefeller Foundation and the Provincial Government will share the cost, estimated at $10,000, for the first three years.——The College of Physicians and Surgeons of Alberta recently made a grant of $500 to the Medical Library fund of Alberta University, on condition that the university spend a like sum.

GENERAL

Society News.—The Sixth Pan American Child Congress, held at Lima, Peru, July 4-12, was addressed, among others, by the following delegates from the United States: Drs. John D. Long, U. S. Public Health Service, on "Relation of Sanitation to Child Health"; Eunice Blanche Sterling, U. S. Public Health Service, infant mortality; Herbert E. Chamberlain, Minneapolis, "Scientific Child Study Based on the Educational System"; James H. Mason Knox, Jr., State of Maryland Department of Health, "Maternal and Infant Care in a Child Health Program," and Clara E. Hayes, American Child Health Association, New York City, "School Medical Inspection in Some Cities of the United States."

Rural Health Service.—The United States Public Health Service reports that at the beginning of 1930 there were 505 counties or districts provided with local health service under full time local health officers. Over 76 per cent of the rural population of the United States is as yet unprovided with sufficient local health service which approaches adequacy.

Survey of Eye Injuries.—The National Society for the Prevention of Blindness, working with the National Safety Council, recently completed an investigation of eyes saved in industry in 1926 and 1927 through the use of goggles or head masks. The survey disclosed that the eyes of 2,757 men and women were saved from serious injury. There were 4,654 recorded instances of workmen saved from injury or blindness in one eye. The report which contains additional statistics concerning the eye hazards of industrial occupations, was conducted among 583 plants of various large industries.

FOREIGN

Medical Center for Uruguay.—The plan for a medical center projected by the Uruguayan government has been completed. Work on the building started, September 15. Dr. Clarence C. Burlingame, executive officer of the New York Medical Center, during its planning and construction has just returned from a three months' stay in Uruguay, where he was consultant for

the government in designing a similar group of buildings. The center is to be twenty-three stories in height, reinforced concrete without steel framework. The program includes a psychiatric institute similar to that recently completed by the state at the New York Medical Center.

Report on Maternal Welfare in Australia.—The Commonwealth of Australia invited Dame Janet Campbell, senior medical officer of the ministry of health in England, to investigate the conditions of maternity and infant welfare in Australia. Dame Campbell made the investigation and her report was reviewed in the Australian letter in THE JOURNAL, May 31. The health officer of the city of Adelaide, Dr. E. A. Johnson, now points out that certain things in the report pertaining to that city were erroneous. The report stated that there is no uniform practice in Australia in regard to the notification of puerperal sepsis and that attempts to define more precisely this condition created considerable confusion, e. g., in Adelaide. Dr. Johnson says that he sent inquiries to the matrons of all maternity homes and private hospitals in Adelaide and to some trained nurses of the Metropolitan County Board, and every one of them replied that there was no confusion in their minds in reporting puerperal fever. The regulation requiring such notification has been in effect more than thirty years.

New Medical School in Burma.—The institute of public health recently opened at the College of Medicine, Rangoon University, is an innovation in the building of the medical school. The Medical College building, opened in October, 1929, is unsurpassed in design and equipment by any medical training institution in Asia. Clinic facilities are offered in the General Hospital with its 550 beds, the newly constructed Dufferin Hospital for Women, and the Mental Hospital. Heads of the seven departments of medical teaching are Europeans. After matriculation, students in Burma must spend a minimum of seven years at the university in order to obtain the M.B., B.S. degrees, the last five of which are spent in England, two years preclinical and three years clinical. University funds have provided clinical and postmortem theaters of the most modern type at the hospitals. Apart from the general completeness of equipment and the ample supply of anatomic material, there are splendidly arranged museums in the pathology and forensic medicine departments. This is due to the fact that more than a thousand complete necropsies are performed annually in the Rangoon General Hospital and that crime with violence is notoriously prevalent. The dean of the medical school is Lieut.-Col. T. F. Owens, I.M.S.

Personal.—Dr. John M. W. Morison has been elected to the chair of radiology at the University of London, tenable at the Cancer Hospital.——Among the awards and appointments of the Royal College of Physicians of London are the Moxon Gold Medal, awarded every third year to the person who is deemed to have most distinguished himself by observation and research in clinical medicine, awarded to Dr. Frederick Parkes Weber; the Weber-Parkes Prize and Medal awarded every third year for work on the etiology, prevention, pathology or treatment of tuberculosis, awarded to Prof. S. Lyle Cummins. Dr. Robert Hutchison was appointed to deliver the Harveian Oration, and Dr. John S. Fairbairn the Bradshaw Lecture, in 1931. Dr. Arthur F. Voelcker has been appointed to represent the college at the celebration in October of the jubilee celebration of the foundation of Mason Science College, Birmingham, and the thirtieth anniversary of the granting of the university charter.——Prof. Ernst Herzog of Erlangen, Germany, has accepted the post of director of the Istituto anatomopatologico at the University of Concepción (Chile).——Prof. Albert Döderlein, director of the gynecologic clinic at Munich, was elected honorary president of the Munich Gynecologic Society on the occasion of his seventieth birthday.——Geheimrat Dr. Paul Krause, director of the medical clinic at Münster, has been elected director of Münster University, and the dermatologist Prof. Ladislaus Nekam has been elected rector of Budapest University.——The centenary of the birth of the celebrated French physiologist Etienne Jules Marey, who died in 1905, was recently celebrated at the Academy de médecine, with an address by Prof. Charles Richet.——The two Osiris prizes, each of the value of 100,000 francs, offered by the Institute de France for the most remarkable work in science, literature and art, have been awarded to Paul Bourget of the Académie française, and Emile Gley, professor of physiology at the College de France.——The Grand Prix de l'Académie française, valued at 15,000 francs, has been awarded to Dr. Georges Duhamel.——Dr. Theodor Axenfeld, professor of ophthalmology at Freiburg, and Hofrat Ernst Fuchs, professor of ophthalmology at Vienna, have been elected honorary members of the Japanese Ophthalmologic Society.

Government Services

Dr. Griffith to Be Medical Director of the United States Veterans' Bureau

Dr. Charles Marion Griffith, executive officer of the Medical Service, United States Veterans' Bureau, has been promoted to be medical director of the bureau, it is reported. He will succeed Dr. Winthrop Adams, who at his own request was assigned as medical officer in charge of the Veterans' Neuropsychiatric Hospital, Bedford, Mass.

U. S. Public Health Services

Asst. Surg. Edward J. Reneke relieved from duty at Marine Hospital, San Francisco, and assigned to duty on Coast Guard Cutter *Sebago;* Sr. Surg. Joseph R. Ridlon relieved from duty at Ellis Island, N. Y., and assigned to duty at Marine Hospital, Portland, Maine, in charge of the hospital; P. A. Surg. Le Grand B. Byington relieved from duty at Nogales, Ariz., and assigned to duty at American Consulate, Mexico City, Mexico; Surg. Roy P. Sandidge relieved from duty in Office of Industrial Hygiene, Washington, D. C., and assigned to duty at Marine Hospital, Baltimore; Surg. Lynne A. Fullerton relieved from duty at Angel Island, Calif., and assigned to duty at American Consulate, Vancouver, B. C.; Surg. George Parcher relieved from duty at Portland, Maine, and assigned to duty at Dublin, Irish Free State; Surg. David J. Prather relieved from duty at Marcus Hook, Pa., and assigned to duty at Havana, Cuba; Medical Director John W. Trask, relieved at Baltimore and directed to assume charge of the U. S. Marine Hospital at Chicago; Medical Director Richard H. Creel, relieved at San Francisco and directed to assume charge of the U. S. Marine Hospital at Baltimore; Medical Director M. H. Foster, relieved at Chicago and directed to assume charge of the U. S. Marine Hospital at Stapleton, N. Y.; Medical Director Mark J. White, relieved at Stapleton and directed to assume charge of the U. S. Marine Hospital at San Francisco; Sr. Surg. William M. Bryan, relieved at Savannah, Ga., and assigned to duty with bureau of Indian affairs, Washington, D. C.; Surg. George Parcher, relieved at Portland, Maine, and assigned to duty at the American Consulate, Oslo, Norway.

Examination for Entrance Into Public Health Service

The U. S. Civil Service Commission announces the following open competitive examinations for medical associate and assistant medical officers: Applications for medical officer, associate medical officer, and assistant medical officer must be on file with the United States Civil Service Commission, Washington, D. C., not later than December 30. These examinations are to fill vacancies in the Veterans' Bureau, Public Health Service, Coast and Geodetic Survey, Panama Canal Service, and Indian Service. On account of the needs of the service, papers will be rated as received and certification made as the needs of the service require. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the postoffice or customhouse in any city.

Change of Station in the Navy

The following changes of station in the navy have recently been announced: Lieut. William H. O'Connor, to the U. S. S. *Brazos;* Comdr. George C. Rhoades, to the Naval Air Station, Hampton Roads, Virginia; Lieut. Comdr. Travis S. Moring, to the U. S. S. *Chicago;* Lieut. Comdr. Frank W. Ryan, to the U. S. S. *Louisville;* Lieut. Louis L. Gilje, to the U. S. S. *Mississippi;* Lieut. Carl H. McMillan, to division 14, destroyer squadron, Battle Fleet; Lieut. Robert S. Simpson, to division 41, destroyer squadron, scouting fleet; Lieut. Comdr. John M. Huff, to the Naval Hospital, League Island, Philadelphia; Lieut. Cyrus R. Currier, to the Navy Yard, Boston; Lieut. Lloyd L. Edmisten, to the Naval Hospital, Great Lakes, Illinois; Lieut. Craig B. Johnson, to the U. S. S. *Camden;* Lieut. Dirk M. te Groen, to the Naval Hospital, Mare Island, California; Lieut. Comdr. Louis E. Mueller, to the second brigade, U. S. Marines, Nicaragua; Lieut. Jasper S. Hunt, to the navy mine depot, Yorktown, Va.; Lieut. Carey M. Smith, to U. S. S. *Argonne;* Lieut. Comdr. William D. Small, to the U. S. S. *Augusta;* Lieut. Gleaves B. Kenney, to the naval hospital, Parris Island, S. C.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 5, 1930.

The British Association

At the annual meeting of the British Association, several of the papers read were, as usual, of especial interest to physicians.

THE SIZE-FACTOR IN DEVELOPMENT

In his presidential address Prof. F. O. Bower, the botanist, discussed the size and form of living things. He quoted the first of the laws of evolution laid down by Lamarck: "Life by its intrinsic forces tends to increase the volume of every living body and to enlarge its parts up to a limit which it determines itself." In unicellular organisms, when a certain size had been reached, fission followed and the halves separated as new individuals, but in pluricellular organisms the products continued a communal life and by further division great size and complexity might be reached. Animals might be pictured as based on the mobile stage of a flagellate, and plants as based on the fixed stage. The whole organization of the two kingdoms then diverged on the basis of nutrition. Herbert Spencer contrasted them physiologically, showing how animals are expenders while plants are accumulators, that the former are limited in their growth by the balance of expenditure against nutrition, while in the latter growth is not so limited. The result of this difference might be illustrated by contrasting the higher forms of these two kingdoms—an elephant with the trees of the forest through which he roams. The relative fewness of the mobile elephants, their smaller stature and compact form, their columnar legs needed to support the barrel-like body, the receptacle for food, the economy of external surface and the highly developed internal surfaces contrasted with the height, immobility and large number of trees with their massive stems, complex shoots and roots, necessary for acquiring food from air and soil. Of all the factors that contributed to the determination of form in growing organisms, none were so constant and inevitable as the size relation. Through the limiting surfaces, "presentation surfaces," as they are called, physiologic changes had to be effected. If the form of the growing organism was retained—for instance, simple sphere, oval or cylinder—its surfaces of transit would increase only as the square of the linear dimensions, while its bulk would increase as the cube. With increasing size there would be constantly decreasing proportion of surface to bulk and approach to physiologic inefficiency. Hence development of a more elaborate form was necessary to uphold the proportion of presentation surface.

THE CHEMISTRY OF THE CELL

Addressing the Section of Physiology, the president, Prof. H. S. Raper, said that although the chemical transformations of life were usually divided into anabolic and catabolic, the distinction was not exact. The synthesis of one substance might require the concurrent degradation of another. Physiologists had been more successful in investigating catabolism than anabolism, for catabolic processes might persist long after the cell had ceased to possess the fundamental properties associated with life. The anabolic processes were essentially those which occurred during life, and to study them cells had to be kept alive. Unlike the chemist, the animal cell had a very limited choice of raw materials for synthesis—the ordinary foodstuffs, which after undergoing the preliminary processes of digestion provided about thirty substances for the building up of new compounds: about twenty amino-acids, two purine bases, three pyrimidine bases, three hexoses, glycerin and higher fatty acids. Possibly there might be undiscovered components of foodstuffs, but they must be few and small in amount. Most biologists would agree that the cell must have arisen by evolution from something simpler and eventually from nonliving materials. The existence of filtrable viruses indicates that material with the prime attribute of life, the power of reproduction, occurs in simpler forms than it is found in the smallest visible organisms. Progress in synthetic chemistry has been intimately associated with ability to represent objectively the structure of substances and the changes which they undergo in a reaction. Much is known about the manifold chemical activities of the cell, but progress is impossible until deductive methods lead to some picture of its organization. Organic chemistry, with all its achievements of synthesis, cannot yet rival the synthetic activities of the cell. That it will ever do so as regards the synthesis of the main foodstuffs—proteins, carbohydrates and fats—cannot be foreseen. Both from the chemical and from the economic standpoints the signs are not hopeful. The synthetic breakfast table is likely to remain a myth. Man has so far not learned from nature the mechanisms of syntheses that she uses and on which his existence depends.

THE DIFFUSION OF CULTURE: THE ORIGIN OF AMERICAN CULTURE

In the Section of Anthropology, Dr. H. S. Harrison in his presidential address supported the theory of Prof. Elliott Smith and Dr. Perry of the diffusion of culture from a single center. He contended that there were no common faculties of the human mind capable of overruling the vagaries of environmental and historical compulsions and directing man's progress in various times and places along parallel lines. The result of these was divergence, not parallelism. The president particularly discussed the origin of the culture of the American Indians, which showed many correspondences with Old World products. But the general level of its highest grades was below that of Egypt and Mesopotamia before 3000 B. C. Taking a few culture-traits, there was cereal culture with irrigation but without the plow; corn grinding with the push-quern but without the rotary quern; pottery with use of manufactured molds but without the wheel; decoration with slips and paints but no mineral glazes; metal working without iron. In tools and weapons, most of the Old World types down to chalcolithic times in stone, copper or bronze were represented. But the hoe never became the plow. The dagger never became the bronze sword. The sledge and the travois never ran on wheels. In these cases there is agreement with the Old World up to a point, and then American culture fell behind. There were correspondences especially reminiscent of eastern Asia: the blow pipe, cotton cultivation, tie-dyeing, gauze weaving, mosaic work, slat-armor and quipus. Correspondences not restricted in distribution in the Old World were plank-boats, the loom, pan pipes, flageolets, steelyards and scales, and the *cire perdue* process of casting bronze. Those who argued for the independent origin of American culture supposed that from the hunting and food-gathering cultures of the first immigrants there developed without extraneous assistance the high cultures of Mexico, Central America and Peru. But, as noted, this supposed advance parallel with the Old World stopped abruptly at many points and always fell short of the Old World. If the American by his "common faculties" did so much, why did they always fail him in advancing at some points more than his Old World rival? Why also is there so much in the higher as well as in the lower American culture that compels comparison with eastern Asia and not with, say, the Neolithic or Bronze Age of western Europe?

Survey of Foot Measurements

The British Boot, Shoe and Allied Trades Research Association has made researches at Northampton which mark the first step in a statistical survey of foot measurements, first of Britain and secondly, it is hoped, of foreign countries. At Northampton 2,500 people of all ages were measured. Each

foot was measured twice, once with and once without the weight of the body on it. The measurements are declared to have "proved the value of the angles in the new methods of measuring the scaffolding of the feet." When the survey has been extended to other towns, the association will have a complete statistical record of the boot and shoe measurements of Britain. The investigation on which the report is based is the outcome of the invention by the research workers of the association of a foot-measuring machine, which reduces the present uncertain method of measurement to a simple formula easily understood by a person with an elementary knowledge of trigonometry and geometry. The new machine is the necessary complement of the machine tools used in the mass production of boots and shoes. For centuries boots and shoes were made by the craftsman, who supplemented his simple measurements by a mental picture of his customer's feet. From these he made his lasts. The measurements sufficient to satisfy the craftman's mental picture of a foot are not sufficient to define the shape of the foot that cannot be seen. In making the foot measurements one important point seems to have been overlooked. In civilized countries some deformity of the foot due to the wearing of boots and shoes is practically universal. Therefore measurements of races which do not wear these articles and of the few persons who have always worn boots properly made for them by a good craftsman should have been taken in order to arrive at the measurements of the normal foot.

PARIS

(From Our Regular Correspondent)

Sept. 3, 1930.

Infections Resulting from River Baths

Every year, with the coming of summer and river bathing, the question arises as to the forms of infection that may be contracted in this manner. In addition to conjunctivitis, which is of frequent occurrence, being observed also in the swimming-pools of Paris, there is a disease that appears to be growing more frequent, although the causes are not so apparent—namely, hemorrhagic spirochetosis. Jean Troisier, Léon Kindberg and Monnerot Dumaine have reported many cases, chiefly in persons who had bathed in the Seine, at Asnières, which is only a few kilometers from the point where the river emerges from the city. Here the river is greatly contaminated by waters coming from sewers and factories. They reported before the Société médicale des hôpitaux a typical case, with repeated attacks of icterus, herpes, myalgia, meningeal reaction, and beginning azotemia. The patient was an excellent swimmer, who did not fear to dive to great depths, and even to gargle the water of the Seine, which facts facilitated infection by the spirochete of Inada, which can now be isolated directly from certain polluted waters. Mr. de Massary also observed, this summer, two patients affected with icterohemorrhagic spirochetosis, in whom the cause of the disease was found to be bathing in the Seine at Asnières. Mr. Etienne Bernard recently attended three cases of icterohemorrhagic spirochetosis at the Hôpital Ambroise-Paré. The patients had been in the habit of bathing daily in the Seine. It appears difficult to prevent this kind of infection, which is, in reality, quite rare, in comparison with the large number of persons who bathe in the Seine in summer. The origin of these spirochetes is unknown, though some suspect the carcasses of drowned rats floating in the river.

Mechanism of Death Due to Cardiac Syncope

Addressing the Société des médecins des hôpitaux de Paris, recently, Laubry and Tzanck discussed the mechanism of death due to cardiac syncope. According to these authors, the cause of death is not so much sudden cardiac insufficiency but rather arrest of the venous circulation, through paralysis of the vasomotors. Laubry and Tzanck were able, in connection with transfusions performed directly on the heart, to observe that the heart was empty. The contractility of the cardiac muscle is, however, preserved, and the serum injected into the heart under these conditions is quickly rejected by that organ. Experiments by Gosset, Charrier and Tzanck, in studies on blood transfusion, have shown them that the venous circulation is, to some extent, autonomic, which explains several problems, such as hypotension, hypertension and the various states of shock. During a case of syncope, in the course of a spinal anesthesia, the pressure dropped suddenly, and then, the syncope receding, returned to exactly the same figures as before, as if the heart had remained a stranger to the incident and had regained its rhythm as soon as the venous circulation had supplied it with the necessary blood for its contraction. Here is a physiologic problem that is new and of considerable importance.

Immunization Against Measles

The child protected against measles by the injection of convalescents' serum is immunized only for a short time. Observations collected by Robert Debré, Henri Bonnet, Robert Broca, Florand and Gros-Decam show that, for the immunity to be well established, the child must have, after the injection, a high temperature for one or two hours, some catarrhal symptoms and a slight cutaneous eruption—transient but frank. In case the clinical symptoms are weak, the child has not acquired sufficient immunity, so that he may contract measles, although the symptoms of the disease would be modified. Béclère has made a similar observation in connection with the vaccine. If into a cow that has recently been inoculated with the vaccine one injects serum of subjects already immunized against smallpox by vaccination, the cow will present only attenuated manifestations, and the less time that has elapsed between the inoculation of the virus and the injection of the serum, the weaker the manifestations will be. Debré suspects that it is the skin that is the agent of the vaccination. As regards the vaccinal or variolar virus, its introduction into the skin, under the skin or into the blood makes the blood virucidal even though no exanthem develops. J. Huber reported that, in eleven infants under 18 months of age, hospitalized and menaced by an epidemic of measles, he injected, by way of prophylaxis, convalescents' serum. Not a single infant developed measles; but some infants had an increased temperature four or five days afterward, and one infant had slight catarrhal symptoms and a mild enanthem at the end of twelve days. In other infants, an elevation of temperature was observed, without catarrhal symptoms or eruption of any kind.

Institute of Preventive Medicine at Strasbourg

Dr. Schreiber, a hygienist of France, returned, two years ago, from a trip to the United States. He expressed his surprise and delight with the results secured in America by the periodic health examinations. With the support of the Comité d'études sociales and the gifts of a philanthropist, it proved possible to establish a first center of preventive medicine in France. This center has been functioning, for the past two years, at the University of Strasbourg—at first, as a matter of trial, only among students. The first year, the students entering the university were asked to submit to physical examinations given at the center. The examination was optional, but of the ninety-seven entrants ninety-two presented themselves for the examinations—twenty-one women students being among the latter. Twenty-four students were found to be affected with disorders of the existence of which they had no suspicion. Forty-nine were suffering from dental defects. For each student a record card was made out, on which were recorded the indications pertaining to the kind of life and the diet required. Today the institute is attracting an ever increasing number of consultants. Its influence is making itself felt beyond the bounds of the university and is extending throughout the whole region of Alsace.

ITALY

(From Our Regular Correspondent)

Aug. 31, 1930.

Congress of Nepiology

The second Congresso nazionale di nipiologia, held in Bolzano, was attended by a notable group of physicians specializing in pediatrics, biology and sociology. In his inaugural address, Prof. Ernesto Lacace explained the conception of nepiology, which includes all pure and applied science pertaining to infancy, being the study of the period in which the child does not speak, considered chiefly from the biologic, the clinical, the psychologic and the hygienic standpoints. According to the speaker, nepiology must be distinguished from pediatrics, which deals only with the medicine of the second and third periods of childhood. Hitherto, however, pediatrics has regarded the study of the nursing child as one of its chief tasks.

Professor Valaguessa, assistant commissioner of the Opera nazionale pro maternità e infanzia, spoke of methods that the society employed in the protection of the infant, and of the care given the mother during pregnancy and the period of lactation. The gouttes de lait have been transformed into homes for mothers, which constitutes the only means of diminishing the infant mortality, which is still rather high in those institutions. He reported the statistics on the visits made at the ambulant centers for puericulture and emphasized the benefits that this system of education provides for the rural population.

Professor Fiore, director of the Clinica pediatrica of the University of Pisa, brought out the fundamental features in the rational rearing of the nursing child—namely, the functioning of the gouttes de lait, the nursing rooms and the rest rooms for infants, all of which contribute to securing for the infants suitable food and normal living conditions.

Professor Allaria of Turin discussed the protection of mothers and the new-born in the factories, and explained how the state cares for the offspring of workmen. There are laws for that purpose, including that in regard to the Cassa di maternità and that concerning the work of women and children. The value of these provisions is evident when one recalls that the offspring of workmen represents the twentieth part of the living new-born in Italy, and the class in which at present the morbidity and the mortality are high.

Professor Cattaneo of the Clinico pediatria in Milan dealt with seaside, mountain air and mineral spring forms of treatment for infants, emphasizing that the widespread belief that these forms of treatment are not adapted to the first year of life is erroneous. Both reason and experience show that infants may derive enormous advantages from such treatment; sometimes infants in an almost hopeless condition are restored to health, provided precise scientific criteria are followed in the application of these treatments.

Dr. Matteucci, chief physician in the Ospedale di Bolzano, and Professor Baglioni, physiologist of the University of Rome, spoke of the present status of knowledge of infant psychology.

At the close of the congress, the Società italiana di nipiologia was founded, and Prof. Ernesto Lacace was elected president.

Government Experiment Station for the Study of Bread Making

The head of the government has filed with the chamber of deputies the draft of a law providing for the creation in Rome of an experimental station for the study of flour making, panification and pastification. The undertaking will constitute a government experimental station for the study of numerous scientific problems associated with the utilization of the various grains. Little is known as yet of the phenomena that occur during the process of bread making, and the government, which is greatly interested in the problem from the national and the hygienic points of view, having never had an experimental laboratory of its own, has been obliged to content itself with knowing what private industry chose to reveal, and has had to rely on the declarations of the industrialists. The experimental station will supervise the whole organization of the milling industry and of the bread making industry, with especial reference to the bolting of flour.

Meeting of the Accademia Lancisiana

The Accademia Lancisiana of Rome held its annual meeting recently under the chairmanship of Professor Fioretti. Professor Arcangeli presented his views on the treatment of syphilitic cardiopathies. Prof. Rinaldo Marchesini spoke on the genesis of the blood platelets, demonstrating their derivation from the stroma of the red corpuscles and nuclear residues. He referred to his many experiments and illustrated his address by numerous photomicrographs of histologic specimens.

Prof. Giovanni Antonelli of the Ospedali riuniti in Rome gave the annual medical presentation as provided by the constitution of the academy. His topic was "Hepatic Insufficiency." The physiologic importance of the liver was known even to Galen, who recognized its function of modifying foods previously acted on by other organs, and changing them into forms utilizable by the organism. It is necessary to discover whether a disturbance is due to a functional defect or to an excess of functioning. Finally, one must bear in mind the possibility of confounding the effects of hepatic insufficiency with the effects of an altered functioning of the liver. He called attention to recent theories on the physiology of the liver, according to which the bile is formed chiefly in the reticulo-endothelial system, including the Kupffer cells, and also in the blood, whereas the liver performs only the duty of eliminating it. These views would explain the forms of icterus of hepatic origin. The bilirubin index furnishes a guiding factor for the diagnosis of hepatic insufficiency, when the possible mechanical factors of biliary retention have been excluded. Another useful sign is the test for albumosuria, based on the proteopexic function of the liver. According to this theory, the liver has the power of fixing proteins insufficiently elaborated in the digestive tract—these having remained in the form of albumose and peptones. On the amino-acids the normal liver exerts a disintegrating effect (deamination) or a reintegrating effect. Amino-aciduria is the consequence and the proof of an amino-acidolytic defect of the liver; it is not, however, constant in hepatic insufficiency and may be encountered in cachexia and in the infectious diseases, such as typhus and pulmonitis. Of importance is the study of the metabolism of fats and of alimentary glycosuria. A few years ago, Löwi affirmed the existence of an hepatic hormone (glycemin), which was supposed to have functions antagonistic to those of insulin. The theory is still discussed, but recent experiments of Löwi himself have not confirmed his first results. One of the most interesting and possibly one of the least known of the aspects of hepatic insufficiency is that which concerns the metabolism of water. In liver patients, the water test performed according to the Volhard method is a useful criterion, demonstrating a retardation of secretion of urine. The speaker considered the various clinical forms of hepatic insufficiency, both latent and manifest. Factors predisposing toward the former are heredity, infections, intestinal intoxications and alcoholism. The manifest forms may be transient, subacute or chronic. These constitute the *grande insufficienza epatica*, which culminates in grave icterus and in grave nervous symptoms, with hemorrhage and hypo-azoturia.

Proposed Changes in the School Calendar

Certain Italian journals favor a proposal to change the school calendar with a view to promoting hygienic conditions, physical and mental, among the students. According to the proposed changes, the school year would begin January 1 and extend to December 31, with a suspension of activity from July 1 to October 1. The quizzes and examinations would take place in

December before the Christmas holidays. The didactic program of the year would be developed entirely in the first semester; the last three months of the year would be devoted to reviews and examinations. The following hygienic advantages would be gained: elimination of the hard mental strain resulting from the need of preparing for examinations over an entire semester's work, during the hot weather. With this plan, the students could devote themselves during the summer to the upbuilding of their physical natures, free from the fatigue and the preoccupation occasioned by the preparation for examinations in the autumn. The preparation for the examinations by thorough reviewing of the courses in the autumn, which is better adapted for study, would bring a gain to both body and mind.

NETHERLANDS

(From Our Regular Correspondent)

July 31, 1930.

The Fate of Offspring of Lepers

Dr. Lampe has collected facts at the hospital for lepers Groot Chatillon, in Dutch Guiana, in order to reply to the questions that are asked in every leprosarium in which marriage between patients is permitted. Are such marriages fruitful? In Groot Chatillon, the coefficient of fecundity of the women appears to be normal: 6.6. Are the offspring of such marriages healthy? In the establishment considered, the mortality of children under 1 year of age is 280 per thousand and in Paramaribo (Dutch Guiana) it is 170 per thousand. It is higher among the offspring of mothers presenting a positive Wassermann test. How many of such children become leprous? The children born at Groot Chatillon are sent elsewhere before they are 1 year old. Of those who could be followed up and who lived more than two years, 26 per cent were affected with leprosy. The disease became manifest between the second and the ninth year of life. Of thirty-nine children who had passed their eighth birthday, thirteen were leprous, the remainder, or 66⅔ per cent, are thus far free from the disease. The children placed in families that are free from leprosy seem to have more of a chance of being exempt. According to Schuitemaker, about 1 per cent of the population of Dutch Guiana and from 2 to 3 per cent of the population of Paramaribo are leprous.

Poliomyelitis in the Netherlands

Poliomyelitis showed in 1929 considerable increase in the Netherlands, 507 cases having been reported in place of the usual average of 60 and the age groups up to 4 inclusive being chiefly affected. The epidemic was combated by the organization of assistance from the neurologic clinics; the distribution of convalescents' serum; as far as possible, hospitalization at government expense, and the tender of facilities for hydrotherapeutic and electrotherapeutic treatments from the end of the acute period. In Rumania, after the epidemics of 1927 and 1928, there were only about sixty cases in 1929. The specific serum prepared with horse serum was employed, but it is difficult to give conclusions in regard to its efficacy, because of the wide differences in the degree of gravity of the cases in which it was applied.

The Beccari Method of Refuse Disposal

Mr. Van Loghem has published (*Versl. en Mededeelingen betr. de Volksgezondheid*) a report of research with a trial tank constructed at Amsterdam in accordance with the Beccari method employed at Scarsdale, near New York, and at Villeneuve Saint-Georges, near Paris. The question is important in the Netherlands because of many large clearings to be fertilized. The matter has been studied to ascertain what, in the Beccari product, permits the securing of a favorable fertilizing action. It has been found that the results are better according as a larger proportion of privy contents enters into the composition of the mass. At Groningen tanks were constructed in a primitive fashion, of clods of peat with bundles of fagots serving as ventilation grills. The temperature, even in winter, ranged between 60 and 70 C. (140 and 158 F.). Later, tanks made of planks were used, with trelliswork at the bottom and wooden ventilation grills, the temperature reaching thus 70 C. The product has been compared, on cleared areas of the province of Drenthe, with ordinary compost, artificial fertilizer and unfermented privy contents. The new product gave superior results. In view of the transportation on a large scale of urban garbage in that part of the Netherlands, there is some talk of subjecting the garbage to biologic treatment. Experiments are being carried on with that objective in sight. As that would be a huge project, an attempt is being made to simplify the method by doing away with tanks.

The advantages of that system over the uncontrolled deposition of privy contents, without previous treatment, are evident. In place of a heterogeneous, repulsive and odorous mass, one secures a homogeneous substance—dry, with the odor of mold—which can be used immediately as fertilizer or for filling purposes. All that is needed is to provide a plant that works as mechanically as possible, with sufficient ground for the deposition of material and readily available transportation.

A trial of the Beccari method is being made also at Utrecht. There, too, the tanks were constructed simply and economically. The experiments are being carried on solely to determine the optimal mixture of human excrement with garbage and other waste material in view of the time required for the operation. It appears to be demonstrated that the operation need not be carried on in tanks and that the fermentation, once it is under way, can be continued in the open.

The author concludes that the Beccari method deserves more consideration by urban administrations than it has received. It does not appear to him necessary to carry on the method with such perfection of detail as was done at Scarsdale, nor to confine oneself to the small tank employed in the original procedure. What needs to be developed chiefly is the mechanical means of transportation, emptying of containers, and feasible modes of sifting.

The Cost of Treatment of Rheumatism

The Netherlands association for combating rheumatism instituted an inquiry, with the aid of the State Bank of Insurance, to determine the total amount of the expenditures made under the law pertaining to invalidity, for the treatment of patients with rheumatism. The results show that, in 1923, cash benefits were paid in 223 new cases of chronic articular rheumatism, representing an expenditure of about 320,000 florins ($128,000); in 1924, cash benefits were paid in 207 new cases ($119,200); in 1925, in 217 cases ($124,000); in 1926, in 290 cases ($165,600). A total of $536,800 was thus expended for cash benefits to rheumatism patients during the period 1923 to 1926. For treatments given to prevent invalidity as a result of rheumatism, there was expended, during the period 1920-1924, for eighty men and fifty-two women, a total of 52,980 florins ($21,192, or $160 per person). The total sum required, during the same period, for treatments under the same conditions in all diseases, was 6,743,613 florins ($2,697,445), or 638 florins ($255) per person.

Mortality Statistics for 1928

The central bureau of statistics in Amsterdam has published the mortality statistics of the Netherlands for 1928. There has been a gradual but constant decline in the mortality rate for a number of years. The rate for 1928 was 9.61 per thousand of population, or 2.74 less than in 1913. Since 1900, the decline in the mortality is more marked in the communes with the larger populations. In 1928 also, the communes with more than 20,000 inhabitants have the lowest mortality.

The difference between the two sexes with respect to general mortality has been growing less since about 1890, the mortality

of the women remaining lower than that of the men, but the latter diminishing more rapidly than the former.

The infant mortality presents the most remarkable decline. The decrease is noted in all the provinces but especially in the two Holland provinces and in the province of Utrecht. The least favorable figures are reported from the provinces of Limburg and Drenthe.

Tuberculosis and cancer, including various malignant tumors, claimed the largest number of victims. Of the deaths from cancer, 55 per cent are due to cancer of the stomach and of the liver. There has been a considerable increase of puerperal disease: 24.9 deaths per 10,000 confinements in 1914-1923; 27.9 in 1924-1928; 33.2 in 1928.

Congress of Rural Hygiene

A congress will be held at Utrecht, September 25-27, on the domiciliary treatment of patients and on the general subject of rural hygiene. The congress, which will be conducted under the auspices of the Green Cross Society, will be aided financially by the government. The minister of labor, commerce and industry, who has likewise charge of public health, will open the congress. The director of the public health service, a number of ministers and other notables are members of the committee of honor. An important part of the session will be devoted to the discussion of preventive medicine. The bureau plans to hold a banquet and organize an auto drive through the environs of Utrecht, to visit institutions of social hygiene. To diminish the expense, the bureau has taken steps to secure free hospitality for the delegates and the nurses from the provinces, in the homes of the citizens.

BERLIN

(From Our Regular Correspondent)

Sept. 8, 1930.

Noise in Berlin

According to a published statement of Berlin's chief of police, the repeated admonitions not to confuse street traffic by unnecessary noise have thus far been of little avail. The officers have therefore been instructed to pay serious attention to the growing volume of noise produced by vehicles. Attention will be given to unnecessary blowing of horns, and to the use of signals that are prohibited. Also other unusual noises must be suppressed, as far as possible, in the future—some of which may be caused by the defective construction of vehicles. The production of undue amounts of smoke and gas, allowing motors to run while cars are standing in the street, useless cruising about of vehicles, and, particularly, racing in the streets, are prohibited. Special attention is again called to the fact that bells or other signals that sound automatically and constantly may not be attached to vehicles. The traffic officers are further instructed to control also the vehicles of public transportation, as, for example, the street railway, with regard to unnecessary production of noise. The giving of unnecessary signals is not permitted. Undue squeaking and unnecessary and unusual noises resulting from the defective construction of vehicles must be reported. Finally, noise caused by loud speakers, phonographs and similar apparatus must be suppressed as far as possible. The playing of musical instruments and the production of disturbing noise in gardens, yards, halls, verandas and balconies are prohibited.

Marriage of Relatives

Prof. R. Fetscher of Dresden, an authority on eugenics, discusses the question of marriage of blood relatives, in *Organ des deutschen Bundes für Volksaufartung und Erbkunde*. Such marriages entail at least an increased risk, as the chances of similar pathologic predispositions occurring in the two spouses are evidently increased. In general, it is better if such marriages are not contracted. But if a physician's opinion is sought in a given case, he can raise objections only if the danger for posterity is many times in excess of normal. If the family is perfectly healthy, including the side lines, no serious objections can be made. It is especially advisable to inquire carefully into the personal histories of the brothers and sisters of the parents and their antecedents.

Poliomyelitis in Central Europe

In view of reports concerning the outbreak of poliomyelitis in Alsace and neighboring regions, the Prussian ministry of public welfare has issued instructions to authorities to pay special attention to the transportation of children from the formerly occupied regions and, if an outbreak of the disease should occur, to report it at once. As yet, no reports of an outbreak of the disease in Prussia have been received. The cases notified thus far this year have not exceeded the numbers observed in recent years.

Women Students of Medicine

Germany counted 555 women students of medicine in 1911; in the winter of 1929-1930 the number had increased to 3,428, a sixfold increase, whereas the men students have increased only 50 per cent. The percentage of women students devoting themselves to medicine is not now so large as formerly. Only about 17 per cent of women students are enrolled in the faculties of medicine; the largest number is found at the University of Berlin (603); then come Munich with 414, Bonn with 262, and Freiburg with 249. The smallest representations are at the universities of Giessen and Erlangen.

The future women physicians are recruited mostly from the middle class (*bürgerstand*). A third of them are daughters of professional men. However, 239 are the daughters of independent artisans and small industrialists; 138 are the daughters of employees and 27 of laborers. Nearly 100 women students of medicine earn the money for carrying on their studies and many also the money for their support. In 1909, there were 82 women physicians in Germany; in 1929, 2,562, the last figure representing something more than 5 per cent of the total number of physicians in Germany (45,332). The woman physician usually settles in a large city. In the rural districts there are only two or three women physicians, and their number is not likely to increase. In Berlin alone there are 476 of the 2,562 women physicians; in Prussia there are 1,309; in Bavaria only 282; in Saxony, 147; in Hamburg, 1,141; in Baden, 107, and in Württemberg, 89. For the next few years, the woman dentist has possibly better professional prospects than the woman physician.

Marriages

VIRGIL THOMAS DE VAULT, La Libertad, Ecuador, South America, to Miss Rheba Arilla Spence of Carmi, Ill., June 23.

ALFRED M. LANGENBACH, Webster Groves, Mo., to Miss Dorothy Schoenhoefer of Ladew Village, July 5.

GARWOOD C. RICHARDSON, Chicago, to Miss Metta Catherine Graf of Springfield, Mo., September 2.

WILLIAM A. MILNER, Sioux City, Iowa, to Miss Alice Mary Sebolt of Davenport, June 21.

HARRY BUFORD MACEY, Lebanon, Tenn., to Miss Virginia St. John in Memphis, September 2.

SAMUEL WOLFE, Philadelphia, to Miss Marie Weaver Yerkes of Hatboro, Pa., September 4.

MORRIE AARON FLOWER to Miss Hilda Markowits, both of Newark, N. J., August 17.

PAUL R. LINDEN, Davenport, Iowa, to Miss Evelyn West of Geneseo, Ill., June 23.

BERNARD STRAUSS, New York, to Miss Evelyn Trauner of San Francisco, July 31.

HOWARD C. EDDY to Miss Elizabeth Cole, both of Cleveland, recently.

Deaths

Archibald Murray Campbell, Mount Vernon, N. Y.; Medical Department of Columbia College, New York, 1873; member of the Medical Society of the State of New York; past president of the city board of health; formerly on the staff of the Mount Vernon Hospital; for many years president of a bank; aged 86; died, August 31, of sarcoma of the neck, arteriosclerosis and myocarditis.

Eugene Buehler, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1898; veteran of the Spanish-American and World wars; at one time secretary and for ten years member of the city board of health; formerly associate editor and business manager of the *Indianapolis Medical Journal;* aged 54; died suddenly, August 6, near Brownsville, Texas, of heart disease.

Mary Blakeridge Sauthoff ✱ Mendota, Wis.; Northwestern University Woman's Medical School, Chicago, 1902; on the staff of the Wisconsin State Hospital for the Insane; aged 53; died, August 5, in the State of Wisconsin General Hospital, Madison, of pneumonia following a cerebral hemorrhage.

Charles Bower Powell, Albia, Iowa; Eclectic Medical Institute, Cincinnati, 1870; College of Physicians and Surgeons, Keokuk, 1882; for many years member and president of the school board; aged 81; died, August 14, as the result of an old cerebral hemorrhage.

Robert Ernest House ✱ Ferris, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1899; member of the Associated Anesthetists of the United States and Canada; aged 55; died, July 15, of passive congestion of the lungs and uremia.

Edmund Cone Brush, Zanesville, Ohio; Starling Medical College, Columbus, 1875; member of the Ohio State Medical Association, and the American College of Surgeons; veteran of the Spanish-American War; aged 77; died, in August, of thrombosis.

Charles William Kavanaugh ✱ Lawrenceburg, Ky.; University of Louisville School of Medicine, 1885; president of the Anderson County Medical Society; formerly mayor of Lawrenceburg; aged 72; died, August 25, of cerebral hemorrhage.

John R. Wagner, Hamburg, Pa.; Bellevue Hospital Medical College, New York, 1884; member of the Medical Society of the State of Pennsylvania; formerly deputy coroner and school director; aged 69; died, May 31, of cerebral hemorrhage.

Joseph B. Riley, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1888; formerly professor of physiology and urinary analysis at his alma mater; aged 72; died, June 24, in Sioux City, Iowa, of cerebral hemorrhage.

Edward Reginald Walters, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1894; formerly director of the department of public health of Pittsburgh; aged 61; died, in August, of carcinoma of the liver.

John Hartford Williams, Columbiana, Ala.; University of Louisville (Ky.) School of Medicine, 1876; member of the Medical Association of the State of Alabama; aged 81; died, March 9, in Lehigh, of heart disease.

Charles Edward Farmer, Somerset, Ky.; Missouri College of Medicine and Science, St. Louis, 1924; served during the World War; aged 35; died, July 26, in the Pulaski County Hospital, of sarcoma of the jaw.

William Hiram Rogers, Detroit; Hahnemann Medical College and Hospital of Philadelphia, 1906; member of the Michigan State Medical Society; aged 63; died, August 18, of cerebral hemorrhage.

James W. McKinney ✱ Bluffton, Ind.; Starling Medical College, Columbus, Ohio, 1898; on the staff of the Wells County Hospital; aged 60; died, August 16, as the result of a cerebral hemorrhage.

Charles Seymour Stern ✱ Hartford, Conn.; Bellevue Hospital Medical College, New York, 1891; member of the American Urological Association; aged 61; died suddenly, May 30, of coronary occlusion.

Ora K. McKittrick ✱ Indianapolis; St. Louis College of Physicians and Surgeons, 1899; formerly on the staff of the Indianapolis City Hospital; aged 56; died, August 29, of carcinoma of the stomach.

John Hudson Terrell, Jr., Charlotte, N. C.; Atlanta College of Physicians and Surgeons, 1910; member of the Medical Association of Georgia; aged 49; died, August 11, of a self-inflicted bullet wound.

Christopher A. Campbell, Detroit; Detroit College of Medicine and Surgery, 1891; aged 63; died, June 14, in St. Mary's Hospital, of cholecystitis, cholelithiasis, peritonitis and ruptured gallbladder.

Cowley S. Pettus ✱ Little Rock, Ark.; Kentucky University Medical Department, Louisville, 1904; aged 53; died, August 17, in the Trinity Hospital, of general peritonitis and acute appendicitis.

Sidney Anson Beckwith ✱ Yonkers, N. Y.; New York Homeopathic Medical College and Hospital, 1901; on the staff of the Yonkers General Hospital; aged 53; died, August 30, of heart disease.

Thomas Pierpont Shaw, Lowell, Mass.; Harvard University Medical School, Boston, 1877; member of the Massachusetts Medical Society; aged 86; died, August 25, of valvular heart disease.

Isaac Z. Brown, Lueders, Texas; Medical Department, University of Tennessee, Nashville, 1897; member of the State Medical Association of Texas; aged 64; died, April 27, of heart disease.

Burr Gammill Ward, Marlin, Texas; Bellevue Hospital Medical College, New York, 1896; member of the State Medical Association of Texas; aged 56; died, May 9, of a gunshot wound.

James F. Miller, Inverness, Fla.; University of Louisville (Ky.) School of Medicine, 1893; member of the Florida Medical Association; aged 78; died, July 25, of subtertian malaria.

Murray McFarlane, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1889; member of the American Academy of Ophthalmology and Otolaryngology; aged 60; died, May 26.

Louis Leonard Ten Broeck, Minneapolis; Rush Medical College, Chicago, 1907; served during the World War; aged 54; was found dead, in August, of carbolic acid poisoning.

Louis Weinstock, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1908; aged 45; died, August 30, in the Jefferson Hospital, of lobar pneumonia.

Louis Cohn ✱ New York; Medical Department of the University of the City of New York, 1884; aged 75; died, August 20, of bronchopneumonia and acute myocarditis.

John Andrew Montgomery ✱ Fresno, Calif.; Northwestern University Medical School, Chicago, 1921; aged 40; died, July 31, in St. Agnes Hospital, of septicemia.

John Santford Gwaltney, San Pedro, Calif.; Keokuk Medical College, 1891; member of the California Medical Association; aged 70; died, July 1, of heart disease.

Paul August Gleim, Trudeau, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1927; aged 29; died, July 11, of pulmonary tuberculosis.

Augustus M. Morrow, Liberal, Kan.; Keokuk Medical College, 1898; member of the Kansas Medical Society; aged 59; died, July 17, of heart disease.

George Anson Starkweather, Fort Madison, Iowa; College of Physicians and Surgeons, Keokuk, 1897; aged 62; died, August 6, of cardiorenal disease.

Ida F. Kittredge, St. Louis; American Medical College, St. Louis, 1903; aged 67; died, August 8, in the Deaconess Hospital, of chronic nephritis.

A. Curtin Wolf, Bedford, Pa.; College of Physicians and Surgeons, Baltimore, 1893; aged 67; died, September 4, of chronic nephritis and uremia.

David Scott Hanson ✱ Cleveland; University of Michigan Medical School, Ann Arbor, 1876; aged 78; died, in August, of cerebral hemorrhage.

Thomas Jefferson Smith, Bethany, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 82; died, May 24, of angina pectoris.

Edward Kirkland, Olar, S. C.; Medical College of the State of South Carolina, Charleston, 1888; aged 70; died, May 27, of uremia.

Charles H. Robinson, Berea, Ky.; University of Louisville School of Medicine, 1890; aged 81; died, August 19, of chronic nephritis.

James C. Dunum, Clarksville, Texas; University of Louisville (Ky.) School of Medicine, 1885; aged 70; died, in August.

Kit W. Rowe, Kerens, Texas; University of Nashville (Tenn.) Medical Department, 1901; aged 58; died, August 14.

John Wheaton Willmot, Toronto, Ont., Canada; Victoria University Medical Department, 1882; aged 76; died, May 30.

Benjamin F. Lippitt, Columbus, Ohio; Starling Medical College, 1883; aged 79; died, August 26, of myocarditis.

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Bureau of Investigation

STEVENS CONSUMPTION CURE

Declared a Fraud and Debarred from the Mails

In this department of THE JOURNAL for April 5, 1919, there was published an article dealing with a fraudulent alleged consumption cure, exploited by one C. H. Stevens, an English quack, who at that time was attempting to swindle returned tuberculous soldiers in Canada. It was brought out, at that time, that Stevens' nostrum, under such names as "Sacco," "Lungsava" and "U. C. Extract," had been exploited in various parts of the world, and the article was summarized in six closing paragraphs as follows:

"1.—In 1904 Stevens was selling 'Sacco' in Capetown, South Africa. When clearing $15,000 a year, he got into the courts and found it expedient to leave Capetown.

"2.—In 1906 Stevens was in Johannesburg, trading as the 'South African Institute of Medicine' and selling his stuff as 'Lungsava'; was twice convicted of violating the law and left for England.

"3.—In 1907 Stevens was in London selling his 'cure' and in 1910 was declared by the courts to be guilty of 'intentional and well-considered fraud,' and his 'cure' denounced as 'nothing but quack remedies.'

"4.—In 1908 the British Medical Association denounced Stevens as a quack and declared his nostrum worthless; and when Stevens sued the association the courts, in 1914, agreed that the characterization was justified.

"5.—In 1915 Stevens' 'cure' appeared in the United States under the name of 'U. C. Extract,' exploited by the Umckaloabo Chemical Company of New York City. This, apparently, was not a commercial success.

"6.—Today [April, 1919], Stevens is attempting to exploit tuberculous Canadian soldiers who have acquired the disease in the service of their country."

THE CONSUMPTION CURE

THE DISCOVERER'S £1,000 GUARANTEE.

CHAS. H. STEVENS,
304, WORPLE ROAD, WIMBLEDON, S.W.

Photographic facsimile (reduced) of one of Stevens' advertisements, appearing a few years ago in a London paper. The original measured about 11 inches by 5 inches. Among the names listed in this advertisement of those who had been "cured" by Stevens' nostrum was one Miss Olley, of whom Stevens said: "Carried out of Brompton Hospital as incurable, now enjoying good health." The facts are, Miss Olley died of pulmonary tuberculosis.

The article, in detail, has been reprinted in the pamphlet "Consumption Cures," prepared and issued by the Bureau of Investigation. Now, the United States postal authorities have got around to Stevens, due to the fact that a consumptive in New York has been swindled by this quack. The man in question saw an advertisement in a magazine published in this country (the name of the magazine, unfortunately, does not appear in the records) and wrote to Stevens, sending him $55 for three months' treatment, on the understanding that if, after four weeks, the patient did not consider the progress of his disease completely arrested, the full amount paid would be refunded.

The victim took the "treatment," of course, without result, and after some correspondence with Stevens paid $35 for a second course and, later on, $35 for a third course, making a total of $125. After taking these "treatments" for a year he found they had done him no good whatever and he is now in a sanitarium. He wrote to Stevens and demanded a refund but obtained no satisfaction. He then wrote the American Chamber of Commerce in London, asking for assistance, and in this way the case came to the attention of the Consul General. The latter reported to the State Department that reputable physicians in London had characterized Stevens as a "well-known quack." The Consul General himself communicated with Stevens, but that impudent faker flatly denied that he was under any obligation to return the fee. This in spite of the fact that the victim had the following printed agreement, signed by Stevens:

"I hereby undertake to return your remittance of ten guineas in full if after you have used my treatment for four weeks you do not consider the progress of your disease is not only completely arrested, but a definite improvement has taken place in your health generally, and you will forward me by the next mail a Doctor's certificate to this effect and the two months' treatment you have not used. It is, of course, understood that you do not make any claim for the return of your money unless you can tell me definitely that you have used the remedy for four weeks regularly, and have kept to the instructions, which are very simple, and need not alter your mode of living in any way."

An inspector for the United States postal authorities entered into test correspondence with Stevens and obtained his usual come-on literature, part of it being the "guarantee" just quoted, that he would return the money paid to him if after four weeks' use of the "cure" the tuberculous process had not been completely arrested and a definite improvement in health taken place. The inspector also received the usual farrago of nonsense from Stevens regarding his nonexistent drug, "Umckaloabo," which the federal authorities, of course, found to be wholly mythical. In view of these facts, the Solicitor for the Post Office Department, Judge Horace J. Donnelly, recommended that a fraud order be issued against Charles H. Stevens of London, England. The order was issued August 19, 1930.

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Palatol.—Parke, Davis and Company of New York City shipped in February, 1929, to Porto Rico a quantity of Palatol that was declared misbranded. The federal chemists reported that analysis showed the preparation to consist essentially of cod liver oil, malt, wild cherry, phosphates, cholesterol, alcohol, sugar and water. The curative claims for this preparation, to the effect that it was a remedy for asthma, bronchitis, coughs, catarrhal affections, anemia, general debility, enlarged glands, malaria, impaired vitality, etc., were declared false and fraudulent. In April, 1929, Parke, Davis and Company of New York, having admitted the allegations, judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the company on payment of costs and the execution of a bond conditioned in part that the preparation should not again be sold until properly relabeled.—[*Notice of Judgment 10537; issued March, 1930.*]

Halanum.—The Radium Research Foundation, Los Angeles, Calif., shipped in April, 1928, to Illinois a quantity of Halanum that was declared adulterated and misbranded. The Radium Research Foundation is the same outfit that puts out Armstrong's Oxycatalyst, sold as a "cancer cure" and, like Halanum, sold under the claim that it was radioactive. Examination of two specimens of Armstrong's Oxycatalyst in the A. M. A. Chemical Laboratory failed to disclose any radioactivity. Likewise, the government in the present case declared that although Halanum was labeled as containing 200 millimicrograms of nonequilibrated elemental radium, it, in fact, contained no radium and was in fact essentially a weak solution of common salt in water. It was further claimed that Halanum raises the oxygen-carrying power of the blood and would rapidly decrease the symptoms of any general toxicosis. The curative

claims to the effect that it was the greatest aphrodisiac known, that it was particularly useful in goiter, impotency, frigidity and prostatic diseases and various other claims of a similar character, were declared false and fraudulent. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16579; issued February, 1930.*]

Eleven Bros. Tonic.—Eleven Bros. Laboratories, Inc., of Marshall, Texas, shipped in March, 1929, to Louisiana a quantity of Eleven Bros. Tonic that was held to be misbranded. The preparation was found by the federal chemists to consist essentially of epsom salt, iron chloride, alcohol and water, flavored with peppermint. The claims that it was a remedy for "bad blood" and disorders of the kidney, liver and nerves, for malaria and indigestion, for rheumatism and high blood pressure, were declared false and fraudulent. In April, 1929, the Eleven Bros. Laboratories, Inc., appeared and judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed and the empty bottles returned to the shippers, after the labels had been removed or rendered nonusable. The Eleven Bros. Laboratories, Inc., were ordered to pay the costs of the proceedings and to refrain from using similar labels in interstate commerce.—[*Notice of Judgment 16543; issued March, 1930.*]

Phenyo-Caffein.—The Phenyo-Caffein Company of New York City shipped into Massachusetts in February, 1929, a quantity of Phenyo-Caffein that was declared misbranded. Analysis showed it to consist essentially of acetanilide, caffeine and camphor. The curative claims for the product, to the effect that it was a remedy for neuralgia, influenza, rheumatism, feverishness, etc., were declared false and fraudulent. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16544; issued March, 1930.*]

Fenholloway Sulphur Springs Water.—A. E. Jackson, Fenholloway, Fla., shipped in August, 1928, into Georgia a quantity of Fenholloway Sulphur Springs Water that was declared adulterated and misbranded. It was held to be adulterated because it contained a filthy animal and vegetable substance; it was declared misbranded because the claim, "The Greatest Health Restorer of the Twentieth Century," was false and fraudulent. In April, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16540; issued March, 1930.*]

Bel-Caps.—W. E. Shuit, Clifton, N. J., shipped to Syracuse, N. Y., in January, 1929, a quantity of Bel-Caps that were declared misbranded. Analysis showed the capsules to contain ammonium, iron and calcium compounds, sulphates, carbonates, chlorides, bromides, camphor, aloin, small amounts of alkaloids and plant extractives, including a laxative drug. The claim that the preparation was a remedy for influenza was declared false and fraudulent and in March, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16577; issued February, 1930.*]

EfeDron Hart Nasal Jelly.—The Hart Drug Corporation, Miami, Fla., shipped to St. Louis in January, 1929, a quantity of EfeDron Hart Nasal Jelly that was declared misbranded. Analysis disclosed it to consist essentially of a mucilaginous mass containing ephedrine hydrochloride, chloretone, carbolic acid, salt and water flavored with oil of cinnamon. The claim made on the trade package that it was entirely harmless was declared false and misleading. The curative claims that it was a remedy for influenza, catarrh, hay-fever and sinus infections were declared false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16535; issued March, 1930.*]

Crane's Laxative Quinine Cold Tablets.—The Crane Medicine Company of Chicago shipped in January, 1929, to Oshkosh, Wis., a quantity of Crane's Laxative Quinine Cold Tablets that were held to be adulterated and misbranded. The federal chemists reported that each tablet contained $\frac{9}{10}$ grain of acetanilide with quinine and cinchonine salts and a laxative plant drug. The article was declared adulterated because the label stated that each tablet contained 1 grain of acetanilide, when, as a matter of fact, it contained only $\frac{9}{10}$ grain; it was declared misbranded because of the claim that it was a remedy for influenza. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16586; issued February, 1930.*]

Bromoline.—The Senoret Chemical Company, St. Louis, Mo., shipped into Indiana in January, 1929, a quantity of Bromoline which was declared misbranded. The federal chemists reported that Bromoline consisted of coated tablets containing acetanilide, cinchonine sulphate and resinous plant material. The claim that it was a remedy for influenza, neuralgia, etc., was declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16545; issued March, 1930.*]

Grip-Sules.—Kingsbury and Frick of Oswego, Kan., shipped in December, 1928, to Missouri a quantity of Grip-Sules that were declared misbranded. Analysis showed the product to be capsules containing about 1½ grains of acetanilide, about ½ grain of caffeine, a quinine compound and a pungent drug, such as red pepper, to each capsule. The claim that it was a remedy for influenza was declared false and fraudulent and in May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16547; issued March, 1930.*]

Numoss.—The C. R. Products Company, New York City, shipped in October, 1928, into New Jersey a quantity of Numoss that was declared misbranded. Analysis showed the preparation to consist of ammonium chloride, creosote and Irish moss, flavored with oil of anise. The therapeutic claims that it was a remedy for bronchial cough, spasmodic croup, whooping cough, influenza and tuberculosis, were declared false and fraudulent. In July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16580; issued February, 1930.*]

Hogan's Old Reliable Cough Syrup.—Hogan's Old Reliable Cough Drops, Inc., of Brooklyn, shipped in January, 1929, into New Jersey a quantity of Hogan's Old Reliable Cough Syrup that was declared misbranded. The preparation was found to consist essentially of ammonium chloride, red pepper, chloroform, extracts of plant drugs, including licorice, squill, wild cherry and senega, with alcohol, sugar and water, and flavored with oil of anise. The claim that it was a remedy for croup, influenza, asthma, etc., was declared false and fraudulent and in July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16582; issued February, 1930.*]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CONTRAINDICATIONS TO OBLITERATION OF VARICOSE VEINS

To the Editor:—A man, aged 64, is suffering from marked varicosities of the left leg extending from the foot to the knee. Trendelenburg tests are doubly positive on that leg, and he has a complicating small ulcer on the external surface of the leg. With treatment of support and dressings, the ulcer has decreased in size. His general condition is good. The systolic blood pressure is 165, the diastolic 90, and urinalysis is negative. Are there any contraindications to the injection treatment of obliterating the veins and if so why? If injection treatments are contraindicated, what treatment is indicated? Would you be so kind as to give me references on this subject? WILLIAM STARK, M.D., Brooklyn.

ANSWER.—Contraindications to the injection treatment of varicose veins may be conveniently grouped into systemic and local conditions. Diseases of more vital importance, such as malignant conditions, active tuberculosis or hyperthyroidism, should obviously receive first attention. Acute colds, infections that may be easily overlooked in office patients, should be first cleared up. Of the local conditions, the impairment of arterial circulation, which is frequently present in older patients afflicted with arteriosclerosis, may retard the healing of ulcers and may be the causative factor of pain. While injections in such patients can be made without much harm, their symptoms will not be relieved by this form of treatment. A lack of patency in the deep veins and a thrombophlebitic edema are definite contraindications to injections. Finally, an acute or subsiding superficial phlebitis must first become quiescent before any injections can be started. It is sometimes difficult to tell whether such latent infection will not flare up following injections. It is safe to wait at least six months after the last attack of superficial phlebitis.

Usually the varicose ulcer, if it is not acutely inflamed, does not contraindicate injection treatment. On the contrary, the ulcer heals up promptly with a combination of zinc-gelatin-glycerin boots and injections. One must be sure, however, to exclude other etiologic factors, chiefly syphilis, and the ulcers following deep phlebitis. The latter show a great deal of phlebitic induration, are best excised and are covered with skin grafts.

REFERENCES

McPheeters, H. O.: Ulcer Cruris; Etiology, Pathology and Treatment, *Surg. Gynec. Obst.* **47**: 469 (Oct.) 1928.

DeTakáts, Géza; and Quint, H. A.: The Injection Treatment of Varicose Veins, *Surg. Gynec. Obst.* **51**: 545 (March) 1930.

Bulletin of the Committee on Varicose Veins of the American Medical Association (price, 15 cents).

REMOVAL OF STAINS OF COD LIVER OIL

To the Editor:—Can you tell me how to remove cod liver oil stains? EVELYN HEATH, M.D., Buffalo.

ANSWER.—At times these stains can be removed by permitting the stained cloth to be exposed to the rays of the sun. The following suggestions are taken from a note appearing in Squibb's Memoranda:

"Before the garment has been washed the stain appears simply as an oil stain—a clear, translucent spot on the fabric—and in this condition it is not difficult to remove. Cod liver oil is what is known as a fixed oil; that is, it does not evaporate as does kerosene or benzine, but remains indefinitely in the fabric. Because it is a fixed oil, soap has very little effect on it; the usual result is that when washed with soap a brown stain appears on the fabric. This brown stain is very resistant, and is often impossible to remove. Hence the best time to handle this stain is before washing the garment.

"Place the stained part of the garment over a folded cloth and apply carbon tetrachloride liberally with a small piece of soft cloth or cheesecloth. The folded cloth under the stain absorbs the oil as the carbon tetrachloride dissolves it. Repeat this a number of times until all traces of the oil have been removed. While carbon tetrachloride still remains, wash with soap and water, giving special attention to the stained spot. Rinse as usual.

"The same procedure will sometimes remove the brown spot which appears after the oil stain has been washed in the garment. However, this stain frequently resists all attempts at removal. Carbon tetrachloride is not inflammable, and in this respect has a great advantage over benzine or gasoline, both of which are very inflammable.

"It is believed that the foregoing directions will prove sufficient in the great majority of instances. Other methods which have been proved of service are as below:

"White goods, colored cotton, and woolen materials: The cloth is wetted and a sponge dipped in oil of turpentine or benzine passed several times over the stain; a piece of blotting paper is then placed over the stain and a hot iron is then passed over the stained place. The entire material is then washed out in warm water and soap.

"Silk, satin and similar materials: A thin paste is formed of magnesium carbonate and ether, which is spread over the stain. When the ether has been volatilized the magnesium stain is brushed away or removed with a piece of soft bread. Old stains of the nature indicated are first dampened with chloroform and then the processes as described are carried out. In any case, to remove the stain entirely will necessitate repetitions of the process.

"It should be remembered that oil of turpentine, ether and benzine are inflammable and must therefore not be used in proximity of an open flame or a burning gas stove."

ETIOLOGY OF MYOCARDITIS

To the Editor:—I would like an opinion in the case of a man who developed pulmonary tuberculosis. His general condition was bad and he lost 30 pounds (13.6 Kg.). The following year, myocarditis was diagnosed. In the absence of any other discoverable focus of infection would you say that the myocarditis was due to or a complication of the pulmonary condition? Please give me your opinion on this.

M.D., South Carolina.

ANSWER.—A definite answer cannot be given. Myocarditis is rather indefinite. Myocardial changes with evidences of cardiac insufficiency do develop in advanced tuberculosis. Tuberculous pericarditis may occur, or streptococcus endocarditis may be superimposed on a pulmonary tuberculosis. In the fibroid type of pulmonary tuberculosis, circulatory changes in the lung may result in right heart hypertrophy and eventual decompensation.

REFLEXES IN MENINGITIS

To the Editor:—Are the signs, namely, Babinski's, Oppenheim's and Gordon's, positive in cerebrospinal meningitis? If so, when, and what is their significance and what is the mechanism of their production in the disease? It has been stated, on the basis of results of examination of a considerable number of cases, that the signs are positive early in the disease. I have examined available literature fairly thoroughly, and I am unable to find references to such observations, nor have I been able to elicit what I could frankly call positive signs myself. Please omit name.

M.D., Honolulu.

ANSWER.—The Babinski, Oppenheim and Gordon signs are significant of some harm to the corticospinal pathway. They may be present either early or late, depending on the degree of involvement of this pathway. They are usually associated with other signs of involvement of the corticospinal pathway; namely, increased tone, exaggeration of the deep reflexes and absence of the superficial reflexes. The signs are present when the corticospinal fibers are involved anywhere above the lumbar enlargement. In meningitis this involvement takes place at the base of the brain in the region of the cerebral peduncles. If an exudate is present there early, the signs will appear early; but no uniformity of involvement of the peduncles is to be expected in a disease such as cerebrospinal meningitis, in which the involvement of the central nervous system is never constantly in the same location.

RETENTION OF ANTISEPTIC ACTION—INCOMPATIBILITY IN PRESCRIPTION

To the Editor:—1. How long does an aqueous solution of mercuric chloride retain its antiseptic or germicidal efficiency when exposed to air? When in a corked bottle does it differ materially? Does the usual addition of citric acid alter this? 2. Is a solution of sodium nitrite and sodium or potassium iodide in simple elixir or in aqueous solution a rational way to administer these drugs; namely, will there be incompatibility or loss of strength in a week or so? Kindly omit name. M.D., New York.

ANSWER.—1. (*a*) If the volume remains the same and there is no contamination due to the presence of organic substances, etc. (that is, if the bottle is plugged with cotton so there may be free contact with air), the germicidal efficiency should be retained indefinitely, provided the amount of mercuric chloride already present has been sufficient to sterilize the solution. (*b*) The advantage of a corked bottle is that the solution would not become more concentrated from evaporation and there

would be less likelihood of contamination by organic material which in time might destroy the mercuric chloride. (c) No.

2. Sodium nitrate and potassium iodide are incompatible.

DOSAGE OF PHENOBARBITAL

To the Editor:—A recent contributor to Queries and Minor Notes stated that he was accustomed to give twice as large a dose of phenobarbital sodium as of phenobarbital. If this dosage is recommended, is it likewise reasonable to prescribe barbital sodium in larger dosage than barbital?

K. P. A. TAYLOR, M.D., Havana, Cuba.

ANSWER.—The dose of phenobarbital sodium should be merely 10 per cent higher than that of phenobarbital: for the molecular weight of phenobarbital (232) bears this relation to the molecular weight of phenobarbital sodium (255). The equivalent dose of soluble barbital-U. S. P. (barbital sodium) should be 12 per cent higher.

GOAT'S MILK IN SENSITIVITY

To the Editor:—1. I would like the name of an ethical preparation of powdered or liquid canned goat's milk or the milk of another animal, as the mare or ass, for use in feeding infants sensitive to cow's milk. 2. Synthetic milks not containing cow's milk or other animal protein for use in infant feeding. I am familiar with Sobee, the preparation of Mead, Johnson & Co., which is an example of this group of milks. In the case I have in mind in making this query this milk substitute cannot be used as the infant is also sensitive to barley, which is present in Sobee.

JEROME GLASER, M.D., Rochester, N. Y.

ANSWER.—1. Meyenberg "Alpine" Goat Milk Laboratories, Inc., Salinas, Calif.

2. There is no artificial preparation available that contains neither cow's milk nor barley. If prolonged boiling or acidified milk is not tolerated, a wetnurse offers the best solution.

ACTION AND USES OF STRAMONIUM

To the Editor:—1. What is the physiologic action of stramonium? 2. What are the contraindications to stramonium? 3. What are the untoward effects of stramonium? 4. What are the signs and symptoms of stramonium poisoning? 5. What are the physiologic and chemical antidotes to stramonium? 6. I have had a man, aged 28, on a teaspoonful of stramonium for four months (he has paralysis agitans following encephalitis). His pupils are widely dilated and do not react to light or in accommodation, and during the past three days he has had some pain in the eyes. Are these symptoms from the stramonium and should the treatment be changed or discontinued? Please omit name and address.

M.D., Pennsylvania.

ANSWER.—1. It paralyzes the nerve endings of the parasympathetic system, including the oculomotor nerves, the cardiac and intestinal vagus and the bronchial musculature. It slightly stimulates and in large doses paralyzes smooth and cardiac muscle. There is a slight paralysis of sensory nerve endings on local application. Certain portions of the central nervous system, especially the medulla, are stimulated and then depressed. Thus, it produces dryness of the mouth, nose and throat, and dryness and redness of the skin, dilatation of the pupils, paralysis of accommodation and a tendency to a rise in intra-ocular pressure. The pulse, at first slowed, is then increased in rate and may become irregular; there is at first rise and then fall in blood pressure. Natisea may be produced and increased frequency of bowel movements. The number and depth of respirations is increased. There is a rise followed by a fall in temperature.

2. The chief contraindication is threatened glaucoma.

3. Great thirst, dilatation of the pupils, and impairment of vision, nausea, sometimes vomiting, rapid pulse, excitement and possibly delirium.

4. In poisoning, delirium becomes a prominent feature; and, with dryness and scarlet redness of the skin, an eruptive fever may be simulated, in the differentiation from which the widely dilated and immobile pupils are of great value. Following giddiness, staggering gait and numbness of the limbs, the paralytic symptoms set in with the appearance of drowsiness, stupor and coma; the fast pulse becomes intermittent; the rapid stertorous respirations slow; cyanosis sets in; convulsions occur but rarely, and the patient dies from paralysis of respirations.

5. If the poison has been swallowed, the stomach should be emptied. Tannic acid and charcoal might be mentioned as chemical antidotes. Pilocarpine, in doses of 10 mg., even if given hourly as a physiologic antidote, usually fails to act in severe cases. Morphine given in small doses is useful during the stage of excitement. Cold to the head and the nape of the neck also helps to combat the delirium. In the paralytic stage oxygen and artificial respiration should be requisitioned.

6. They are, and the treatment should be discontinued or the dose markedly reduced.

ISOLATION OF CHEMICAL FRACTIONS OF WORMS

To the Editor:—Will you kindly advise me concerning the best method of isolating the protein, carbohydrate and lipoid fractions of worms such as *Ascaris lumbricoides* and *Taenia saginata*. It is desired to separate these three classes of material in order to test their properties as antigens. I am isolated for the summer from a library large enough to enable me to study the literature on the subject.

H. M. MILLER, JR., Friday Harbor, Wash.

ANSWER.—Work on neither *Ascaris lumbricoides* nor *Taenia saginata* has progressed to the point that methods of isolating proteins, carbohydrates and lipoid fractions can be given with any exactitude. Considerable experimentation has been carried out with *Ascaris lumbricoides* to ascertain the nature of the substance eliciting the immediate skin reaction in *Ascaris*-sensitive persons (Ranson, Harrison and Couch: *J. Agric. Res.* **28**:577, 1924; Jadassohn: *Arch. f. Dermat. u. Syph.* **156**:690, 1928) but no exact methods have been devised. Undoubtedly, the next step in this work is to attempt the isolation of a crystalline protein by the method developed by Seibert (*Am. Rev. Tuberc.* **17**:402 [April] 1928) for tuberculin and the isolation of carbohydrates by such methods as those of Bloch and Karrer (*Bielbl. z. Vierteljahrschr. d. Naturf. Gesellsch.* Zurich **72**:1, 1927) in the isolation of a crystalline glucoside from the primrose or of the well known methods for the isolation of soluble specific substances from pneumococci as started by Aver and Heidelberger. *Taenia saginata* and other species of tapeworms have been used extensively for the study of so-called lipoid antigens (Meyer: *Ztschr. f. Immunitätsforsch.*, orig. **7**:732, 1910; **9**:530, 1911; **11**:211, 1911; **14**:355, 1912; **19**:313, 1913; **20**:367, 1913; **21**:654, 1914; and a forthcoming paper by Wharton in the *American Journal of Hygiene*). In all of this work the lipoid fraction simply signifies an extract of the worm with such lipoid solvents as alcohol and ether made either at room temperature or in a Soxhlet extraction apparatus. The purity of such extracts is open to serious question. For more extensive literature references to this type of work the reader is referred to Wells (The Chemical Aspects of Immunity, New York, 1929) for the general chemical aspects and to Taliaferro (The Immunology of Parasitic Infections, New York, 1929) for the purely parasitologic aspects.

TREATMENT FOR TAENIA SAGINATA

To the Editor:—A woman, aged 40, has ova of *Taenia saginata* in the stools. I have given her oleoresin of aspidium on two occasions without results. The first dose was 30 grains (2 Gm.); on the second attempt dose was increased to 60 grains (4 Gm.). She was prepared for three days before the vermifuge by saline cathartics and spirit of chloroform and also a liquid diet. She was cautioned to pass the stools in a vessel of warm water but no segments were seen. Can you suggest a more suitable vermifuge in this case? Please omit name.

M.D., Tennessee.

ANSWER.—The dose was probably insufficient. The fullest safe dose is usually required. This may be placed at 8 Gm. of the oleoresin of aspidium. Duodenal tube administration of an emulsion composed of chloroform, 1 cc., oleoresin of aspidium, 4 cc., mucilage of acacia, to make 30 cc., is recommended in resistant cases. It is claimed that a smaller dose than usually required acts more powerfully, when given by duodenal tube, because of minimal dilution (P. S. Kaadt, 1927).

THE SCHICKERLING SUN LAMP

To the Editor:—What can you tell me concerning the Schickerling Sun Lamp?

M.D., Chicago.

ANSWER.—This is another of the alleged generators of synthetic sunshine. The advertising matter put out by the manufacturer is flamboyant. The absurd therapeutic claims made for this lamp reveal either a conscienceless disregard of the known facts relating to light therapy or abysmal ignorance of such facts.

There is no evidence that this lamp deserves serious consideration as a source of ultraviolet energy of biologic significance. Physical measurements made by Coblentz and reported in an official article of the Council on Physical Therapy (THE JOURNAL, August 9, p. 411) indicate that the ultraviolet output of this lamp of wavelengths less than 313 millimicrons is less than a thousandth of the ultraviolet radiation in noon-hour June sunlight. In other words, a patient would receive more ultraviolet in a one-hour exposure to noon-hour June sunlight than he would in 1,000 hours from a Schickerling lamp placed two feet away!

Any therapeutic value that this lamp might have is probably due to the heating effect of the visible and infra-red rays

emitted by it. For this purpose an ordinary incandescent filament lamp sold for lighting purposes would serve as well and would be much cheaper.

TABES DORSALIS — HYPOTHYROIDISM

To the Editor:—I would greatly appreciate your advice regarding therapy and what results one might expect in the following cases: 1. A woman, aged 45, married, had a positive Wassermann reaction on the blood and spinal fluid five years ago; two years' treatment was given at that time, including injections in the arm (neoarsphenamine?) and buttocks. No treatment has been given for the past three years. Ataxia began five years ago. The patient now has Argyll Robertson pupils, absence of knee jerks, lightning pains and ataxia; she walks with difficulty when assisted. Would the malaria treatment be indicated? 2. A girl, aged 13, weighs 51 pounds (23 Kg.), is 47 inches (119 cm.) in height, has not begun to menstruate, and has no pubic hair. The breasts are not developed, the fingers are stubby, the skin is dry, the abdomen is slightly prominent, the tonsils are infected, and progress in school is good. Please omit name.

M.D., Ohio.

ANSWER.—1. The patient undoubtedly has tabes dorsalis. Malaria treatment is associated with a mortality of about 10 per cent and is usually not given to these patients because their life outlook is rather long. It is better to use arsphenamine or tryparsamide with mercury or bismuth compounds. It is possible by intensive therapy that the disease may be arrested.

2. It is suggested that this child have a basal metabolic determination made because the symptoms suggest hypothyroidism. If the rate is high, desiccated thyroid (Thyroideum-U. S. P.) should be administered.

CONTROL OF HEMORRHAGE DURING BOXING MATCH

To the Editor:—Would you suggest some effective remedy to be used to stop the flow of blood occurring in a face wound during a boxing match? I have tried Monsel's solution, solution of epinephrine hydrochloride and collodion, but these were either useless or objectionable. Kindly omit name.

M.D., Pennsylvania.

ANSWER.—Ferric subsulphate (Monsel's powder) is likely to be more efficient than the solution, especially when applied with pressure; or, in case of arterial bleeding, in connection with tamponade and a pressure bandage. An exposed arterial "spurter" is best caught with artery forceps and twisted. If this does not suffice, ligation or suture should be resorted to.

VITILIGO

To the Editor:—Can you suggest any treatment for vitiligo? What can be done to decrease the prominence of the white patches on the neck of a brunette? Kindly omit name and address

M.D., New York.

ANSWER.—There is no successful method of treatment for vitiligo. The internal administration of arsenicals and organotherapeutic remedies has been tried in the past. Recently gold sodium thiosulphate has been recommended intravenously in doses of from 25 to 50 mg. Another recent suggestion is to paint the affected areas with 10 per cent oil of bergamot in alcohol and then expose to ultraviolet rays. The prominence of the patches may be diminished by coloring with walnut juice or weak tincture of iodine.

POSSIBLE INDUSTRIAL CAUSES OF OPTIC ATROPHY

To the Editor:—I have a patient, a man, aged 39, who complains of failing vision for the past four months. There is a definite bilateral optic atrophy. Each disk, especially the temporal half, shows a greenish white pallor. For the past three years he has been employed in removing paint from automobile trucks. In this work he used a boiling hot solution of "Test X Oakite." He describes this preparation as a brownish powder which comes in barrels. He states that four men employed in similar work in a neighboring city were taken to a hospital because of gastric disturbances. In the past, the patient has had a negative Wassermann reaction and I am now having this test made again. Have you any information as to the chemical composition of "Oakite," and have any cases of optic atrophy or other poisoning from this substance been reported in the literature? Please omit name.

M.D., Rhode Island.

ANSWER.—"Oakite" is one of several cleaning agents manufactured by Oakite Products, Inc., of 22 Thames Street, New York. On inquiry, the firm refused to divulge the composition of "Oakite." A few qualitative tests in the A. M. A. Chemical Laboratory indicated that the product contained trisodium phosphate. Soap, sodium carbonate or appreciable amounts of insoluble material were not found. Quantitative determinations were not made. "Oakite" is used in washing machines, in laundries, and in dish washing. It is not known to cause serious harm to exposed persons.

"Test X Oakite" is employed in stripping work, paint removing and degreasing processes. Its exact composition is not known, but it is believed to be caustic alkali. This substance may lead to alkali burns but will not, in all likelihood, produce optic atrophy, particularly in the absence of history of direct caustic action on the eye.

If, in truth, the optic atrophy is related to work, a more promising line of investigation may be found in determining whether or not lead is present in the truck paint, and if lead is entering the body of the workman. Optic atrophy from lead is a well established occupational manifestation. The application of "Test X Oakite" for stripping purposes is carried out as a wet process; hence little or no dust may be expected, unless sanding is done as a preceding or subsequent step in the work. Even though no dust may be demonstrated, particles of lead-bearing paint may be conveyed to the mouth on the fingers.

In some factories methyl alcohol enters into the chemicals used for removing paint. If this workman employs methyl alcohol to any extent, efforts should be made to determine the possible relationship between this agent and the optic atrophy.

APPEARANCE OF STOOL AFTER IRON THERAPY

To the Editor:—Should a ferruginous tablet or pill (say, with reduced iron in it) always and forever cause the feces to be blackened or of a dark lead color? If the normal brown color is unchanged do you believe that disintegration of the pill mass takes place? Why should a ferruginous pill that readily disintegrates in water kept at 99 F. fail to give dark stools when taken in full physiologic doses? Is there any reason why ferrum reductum should fail to impart the darkened pigment of iron sulphide to the dejecta while the carbonate form or Blaud's pill produces the color effect?

B. LAKE NOYES, M.D., Stonington, Me.

ANSWER.—The dark color in the stools is due to sulphide or tannate of iron. If hydrogen sulphide or tannic acid is absent in the stools, the dark color will not appear, just as it does not occur without the iron. Reduced iron may fail to give the dark color in the stools if there is no hydrochloric acid in the stomach, on which the solution of the powdered iron depends.

BRUCELLA ABORTUS AND PASTEURIZATION

To the Editor:—In THE JOURNAL, April 19, the editorial on undulant fever was most interesting. I have tried to obtain conclusive information whether ordinary pasteurization, as practiced, destroys *Brucella abortus* or *Brucella melitensis*. The medical interpreter looked up the subject for me and was unable to give me positive information. This I would appreciate in order to lay plans for regulation of milk supply for local board of health.

ELWOOD T. QUINN, M.D., Jenkintown, Pa.

ANSWER.—Experimental evidence obtained by several investigators indicates that complete, carefully supervised pasteurization (from 143 to 145 F. for thirty minutes) will kill organisms of the *Brucella* group. Park of New York prepared a milk suspension containing 5,000 million *Brucella* organisms per cubic centimeter. The suspension was prepared by mixing several strains of *Brucella abortus* isolated from cattle and swine with cultures of *Brucella melitensis*. All of these organisms were killed when exposed to 140 F. for ten minutes, to 142 F. for seven minutes and to 145 F. for five minutes. Boak and Carpenter grew eight strains of *Brucella abortus* of porcine, human and bovine origin in milk. An exposure of fifteen minutes at 140 F. completely destroyed the human and bovine cultures, while the porcine strains were destroyed in twenty minutes at 140 F., fifteen minutes at 142 F. and ten minutes at 145 F. Zwick and Wedeman found that *Brucella abortus* was killed in from ten to fifteen minutes at 60 C. (140 F.) and in from five to ten minutes at 65 C. (149 F.).

TREATMENT OF CHRONIC ECZEMA

To the Editor:—A woman, aged about 25, for years has had a dry chronic eczema of both hands and forearms. It gets dry and the skin is much thickened and rough and at times cracks open. I have done everything and cannot entirely clear it up. I have used ultraviolet quartz light and many kinds of ointments. The question I want to ask is this: Is there not some arsenical preparation that can be used intravenously? Can you suggest anything that I can do?

R. E. HUNT, M.D., Belvidere, Ill.

ANSWER.—The chronic type of eczema associated with parakeratosis and acanthosis will disappear quickly as a rule under the influence of unfiltered x-rays in doses of one-fourth skin unit once a week. The rapidity and permanence of the cure will depend largely on the underlying causes. X-rays properly used are considered to be one of the best remedial agents available for eczema. However, it is essential that all possible external and internal causative factors be eliminated. The intravenous use of arsenic in any form is not only contraindicated in a case of this type; it might prove to be positively harmful.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 7 and 8, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

ARKANSAS: Little Rock, Nov. 3, 1930. Basic Science. Sec., Mr. Louis E. Grehauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark.

COLORADO: Denver, Oct. 7, 1930. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

CONNECTICUT: New Haven, Oct. 11, 1930. Basic Science. Address State Board of Healing Arts, 1895 Yale Station, New Haven, Conn. Regular, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

FLORIDA: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

GEORGIA: Atlanta, Oct. 14-16, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

IDAHO: Boise, Oct. 7, 1930. Comm., Hon. F. E. Lukens, Boise, Idaho.

ILLINOIS: Chicago, Oct. 14-16, 1930. Supt., Mr. P. B. Johnson, Springfield, Ill.

MAINE: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 142 State St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

MICHIGAN: Lansing, Oct. 14-16, 1930. Sec., Dr. F. C. Warnshuis, 1010 Macabee Bldg., Detroit, Mich.

MINNESOTA: Minneapolis, Oct. 7 and 8, 1930. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn. Reg., Minneapolis, Oct. 21-23, 1930. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

MONTANA: Helena, Oct. 7, 1930. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEBRASKA: Lincoln, Oct. 7-8, 1930. Basic Science. Sec., Mr. Ernest M. Pollard, Lincoln, Neb.

NEVADA: Carson City, Nov. 3-5, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, Oct. 13-14, 1930. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

RHODE ISLAND: Providence, Oct. 2 and 3, 1930. Dir., Mr. L. A. Round, 319 State Office Bldg., Providence, R. I.

SOUTH CAROLINA: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

WYOMING: Cheyenne, Oct. 6, 1930. Sec., Dr. H. W. Hassed, Capitol Bldg., Cheyenne, Wyo.

Delaware June Examination

Dr. Harold Springer, secretary of the Medical Council of Delaware, reports the written examination held at Wilmington, June 10-12, 1930. The examination covered 10 subjects and included 100 questions. An average of 70 per cent was required to pass. Nine candidates were examined, 7 of whom passed and 2 failed. The following colleges were represented:

PASSED			
College		Year Grad.	Per Cent
Howard University School of Medicine		(1929)	80.2
University of Michigan Medical School		(1929)	83.6
Hahnemann Medical College and Hosp. of Philadelphia		(1929)	86.4, 88.5
Jefferson Medical College		(1929)	81.4
Temple University School of Medicine		(1929)	76.2
Osteopath			86.2
FAILED			
College		Year Grad.	Per Cent
Osteopaths			63.1, 63.8

Michigan Reciprocity Report

Dr. F. C. Warnshuis, secretary of the Board of Registration in Medicine in Michigan, reports 45 physicians licensed through reciprocity with other states from Jan. 1 to Aug. 6, 1930. The following colleges were represented:

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Stanford University School of Medicine	(1925)	California
Yale University School of Medicine	(1923)	Connecticut
Howard University School of Medicine	(1928)	Dist. Colum.
University of Georgia Medical Department	(1927, 2)	Georgia
Hahnemann Med. College and Hosp. Chicago	(1896) (1921)	Illinois
Loyola University School of Medicine	(1927)	Illinois
Northwestern University Medical School	(1928)	Illinois
Rush Medical College	(1919)	Illinois
University of Illinois School of Med.	(1905) Wash. (1929)	Illinois
Indiana University School of Medicine	(1925) (1929)	Indiana
State Univ. Iowa Coll. Med.	(1924, 2) (1927) (1928) (1929)	Iowa
University of Louisville School of Medicine	(1929)	Kentucky
College of Physicians and Surgeons, Baltimore	(1912)	W. Virginia
Johns Hopkins University School of Medicine	(1925)	Maryland
University of Minnesota Medical School	(1926)	Minnesota
St. Louis University School of Medicine	(1924) (1927)	Missouri
Creighton University School of Medicine	(1934)	Nebraska
Columbia University College of Phys. and Surgs.	(1928)	New York
Syracuse University College of Medicine	(1905)	New York
University and Bellevue Hospital Medical College	(1927)	New Jersey
Eclectic Medical College, Cincinnati	(1927) Indiana, (1929)	Ohio
Ohio State University College of Medicine	(1929)	Ohio
University of Cincinnati College of Medicine	(1925)	Minnesota
Univ. of Pennsylvania School of Med.	(1923) Ohio, (1928)	Colorado
Medical College of the State of South Carolina	(1914)	S. Carolina
Meharry Medical College	(1927)	Louisiana
University of Vermont College of Medicine	(1909)	Mass.
University of Virginia Department of Medicine	(1921)	Virginia
Marquette University School of Medicine	(1927)	Wisconsin
Medical Faculty of Trinity University, Toronto	(1895)	Iowa
Queen's University Faculty of Medicine	(1919)	New York
University of Toronto Faculty of Medicine	(1915) (1926) 1927)	Minnesota Ohio

Book Notices

TROPICAL MEDICINE IN THE UNITED STATES. By Alfred C. Reed, M.D., Professor of Tropical Medicine, the Pacific Institute of Tropical Medicine Within the George Williams Hooper Foundation for Medical Research of the University of California. Cloth. Price, $6. Pp. 410, with 60 illustrations. Philadelphia: J. B. Lippincott Company, 1930.

This addition to the rapidly increasing number of textbooks on tropical medicine is unique in that it is not written for workers in the tropics but "to present a serviceable guide to the physician in the United States in his contact with tropical medicine." The various diseases are presented from the clinical standpoint, with sanitation, basic bacteriology and parasitology reduced to a minimum. The scope of the book is broad, including sections on protozoal, spirochetal, bacterial, helminthic, mycotic and metabolic diseases; a section on diseases of unknown etiology, such as yellow fever, typhus and dengue; a section on arthropod parasites, and a final section on varied topics, such as tropical ulcers, heat disease, personal hygiene and tropical climatology. Many readers will probably disagree with the selection of some of the items. Thus, although the author omits trypanosomiasis because, as he explains, it is not encountered in the United States, he includes a section on kala azar; and although he has considered some infections that are rare, he has summarily dealt with others, such as trichinosis, which are of considerable interest. Aside from these criticisms, which are largely matters of opinion, and in spite of some statements that may not meet with the approval of specialists in the different fields, the book is down to date and exceedingly well arranged and written. The author is to be congratulated on trying to bring before the American medical profession those phases of tropical medicine which are encountered in routine practice and which have been largely overlooked in the past.

DIE BEHANDLUNG DER OHREN-, NASEN- UND HALSKRANKHEITEN IN DER ALLGEMEINPRAXIS. Von Priv.-Doz. Dr. J. Berberich, Oberarzt der Universität-Ohren-, Hals- und Nasenklinik, Frankfurt a. M. Paper. Price, 10.50 marks. Pp. 227, with 14 illustrations. Leipzig: Georg Thieme, 1930.

The object of this little work, according to the author, is to give the general practitioner as much information as possible with reference to diagnosis and the treatment of the most common diseases of the ear, nose and throat which he meets in his daily practice. The first section of the book is devoted to the ear, particularly the local medication both of the external auditory canal and of the middle ear. Various methods of examination are described; then follows a discussion of diseases of the external, middle and inner ear together with intracranial complications. A similar outline of topics is presented with reference to the nose, accessory sinuses, pharynx and larynx. The author presents the subjects in a systematic, concise and clear manner. He calls attention to practical situations, such as the danger of interference with nasal furuncles, and the care to be employed in regulating the temperature of fluids instilled into the ear in order to avoid vertigo. One must disagree with him, however, when he advises that the head should be bent backward in the attempt to control epistaxis arising from the anterior end of the nose. It is far better in these instances when a tampon has been inserted in the nose that the head be held slightly forward so that the blood will remain in the anterior portion of the nose, and clot, rather than run toward the pharynx with the resulting gagging, struggling and further bleeding. In describing the steps for opening a peritonsillar abscess, the author states that the incision should be directed

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upward and outward. It is much safer to cut toward the median line, for if in so doing the soft palate is accidentally incised too far, it may easily be repaired, whereas when the attempt is made to cut laterally, if the patient moves, the blade may enter the larger blood vessels of the neck. Aside from these points, the book is admirable and should prove of great practical benefit to those physicians in general practice who often have occasion to see otorhinologic conditions.

HYGIENE FOR NURSES. By John Guy, M.D., D.P.H., F.R.F.P. & S., Deputy Medical Officer of Health and Tuberculosis Officer, City of Edinburgh, and G. J. I. Linklater, O.B.E., M.D., D.P.H., Assistant Tuberculosis Officer, City of Edinburgh. Cloth. Price, $1.75 net. Pp. 212, with 18 illustrations. New York: William Wood & Company, 1930.

To put within 200 pages material on such a wide range of topics as water, air and ventilation, housing, heating, lighting, sewage disposal, communicable diseases, external parasites, personal hygiene, food and metabolism, vegetable foods and animal foods, internal parasites and a chapter on the nurse in relation to public health, requires that each subject be treated briefly. It is the intention of the author to curtail the description of such engineering subjects as water supply and sewage disposal and to stress the personal aspects of hygiene with which the nurse will be confronted in her ordinary duties. The sanitary laws cited are those which have been promulgated in Great Britain and hence are not entirely applicable to the United States. The book should serve its purpose well, however. The material is down to date and accurate and is so presented as to give the nurse an idea of what it is all about without confusing her with too many details.

L'HÉRÉDO-SYPHILIS MENTALE. Par le Dr. P. L. Drouet, médecin des Hôpitaux de Nancy, et le Dr. J. Hamel, médecin chef de service à L'Asile de Marèville, Nancy. Préface de M. le Professeur L. Spillmann, doyen de la Faculté de médecine de Nancy. Paper. Pp. 205. Paris: Masson & Cie, 1930.

Syphilis exerts a malevolent influence on the tissue of the adult. When transmitted it distorts the orderly development of the tissues of the descendant either directly in the first generation or indirectly in the second. Sometimes the disease itself is transmitted and sometimes merely a dystrophy or dysfunction probably due to corruption of the glands of internal secretion. The more remote the transmission or the less virulent its origin, the more commonly does the disease manifest itself by a lability of the organism in the form of a dystrophy or dysfunction. Keen observers insist that the nervous tissue becomes involved almost with the appearance of the chancre. This view is not found in their writings but is secreted in the private explanations of many competent neurologists called on to treat the frequently early nervous signs. As a specific nervous condition one sees in inherited syphilis such well defined entities as juvenile tabes and juvenile dementia paralytica. What clinical entities will be found in the unstable, fragile, easily disintegrated nervous tissue of the less virulent, therefore, less typically inherited syphilis?

To the traditional Gaul has been vouchsafed an experience in syphilology. The French have shouldered the responsibility of arousing the suspicions of other nations to these less clearly labeled mental manifestations. Drouet and Hamel have reopened the case of the guilt of inherited syphilis in the causation of mental disturbances. Throughout their monograph on the mental side of inherited syphilis they plead for a proper appreciation and understanding of what constitutes hereditary syphilis. They insist on the inclusion of the physical and serologic factors and a complete family investigation. In the physical sizing up they lay great stress on the dystrophies, such as cranial, dental, facial and ocular, and the condition called axyphoidia. In the hereditary syphilitic individual there is apt to be a combination giving a special aspect. There is often a peculiar physiognomy. To the critic fretting over the significance of the dystrophies is dedicated the consolation that these peculiar characteristics are not of a syphilitic nature but of a syphilitic origin.

The authors insist further that the serologic tests be carried out by every known method. There are psychopathic individua's of syphilitic inheritance who betray no physical signs but whose Wassermann tests, for instance, are four plus. More frequently the serologic tests do not yield positive results without a struggle. In the presence of other factors a weak positive test is significant. This is particularly true of the older congenitally diseased and those of remoter inheritance. The same significance attaches in the case of children of parents whose infection was of long standing before the birth of the child in question or whose disease had been actively treated. It is not to be expected that the spinal fluid will consistently agree with the blood examination. In some cases one is positive while the other is negative, and in others both fluids are positive to some degree, at least. In the study of inherited syphilis as well as in the treatment, the family must be considered as the unit. It is more important to survey the incidence of syphilis by complete examination and history of the family of the suspect in order to gather more accurate statistics on the syphilitic etiology of psychopathology than it is to survey the entire family of the ordinary mental patient merely for the psychiatric satisfaction of multiplying data in the routine case. Drouet and Hamel make it unmistakably clear that only when clinical, serologic and family factors are exhaustively studied can the rôle of inherited syphilis in the production of mental conditions be appreciated adequately. As a matter of fact, the more conscientiously this course is pursued the greater percentage of inherited syphilis will be uncovered in the mentally abnormal.

In the pathogenesis it is more easily understood that mental effects may be produced by organic disorders of development of the brain, by specific lesions of the brain and meninges, and indirectly by effects on the glands of internal secretion. Less well appreciated is the indirect rôle. Inherited syphilis sensitizes certain tissues. There may be a susceptibility of the nervous tissue. Inherited syphilis constitutes a terrain on which mental disorders may develop. The authors do not presume to describe a new clinical psychiatric entity on this basis but rather indicate that it may act as a predisposing factor permitting dementia praecox, delinquency or simple mental retardation to arise particularly in the young or as a determining factor yielding manic depressive and other states in the adult.

These seem like theoretical considerations and generalizations. The authors may be placed on the defensive for their syphilitic perspective by the prosaic critic who cannot see beyond his statistical nose. Adopting the methods of the medical mathematician, Drouet and Hamel base their conclusions on an intensive study of 111 children and adolescents and 70 adults with inherited syphilis. They define the fundamentals of inherited syphilis and develop its etiologic and pathogenic rôle in the production of mental abnormalities. They discuss the social implications of the problem and complete the subject with a consideration of prophylaxis and treatment. As a direct contribution they have established that a much larger group of psychoneurotic individuals than is commonly realized is bound up with inherited syphilis. They do not insist on fixed figures applicable generally because obvious variations enter into different situations. Nevertheless, it can be definitely stated that where there is no syphilis there will be much less psychopathologic change, especially in the young.

MOUTH INFECTIONS AND THEIR RELATION TO SYSTEMIC DISEASES: A Review of the Literature. By Malcolm Graeme MacNevin, M.D., F.A.C.P., Consulting Gastro-Enterologist, Hospital for Ruptured and Crippled, New York City, and Harold Stearns Vaughan, M.D., D.D.S., F.A.C.S., Professor Oral Surgery, New York Post-Graduate Medical School and Hospital. Cloth. Price, $4. Pp. 390. New York: Joseph Purcell Research Memorial, 1930.

In June, 1920, the Joseph Purcell Research Memorial was established through the generosity of Mrs. Annie Leonore Purcell in memory of her husband, Mr. Joseph Purcell, who died of an obscure mouth infection. Realizing how impossible, as well as unpractical, it is for the busy professional man to keep in touch with the great quantity and varied quality of medical and dental writings on oral sepsis, a thorough and critical review of the literature has been prepared by the authors as their first contribution to the study of mouth infections in relation to systemic disease. Chapter I is historical; the next four chapters deal with the modern aspects of oral infection, the

evidences and mechanism of oral focal infection and adjacent extensions of oral sepsis; Chapters VI to XIII consider mouth infections in relation to diseases of the eye, ear, skin, digestive and circulatory systems, arthritis and pediatrics; these are followed by sections on the normal mouth, pyorrhea, caries and pulpless teeth. Only the most important and pertinent contributions are appended in the bibliography at the conclusion of each chapter. The discussions are everywhere open and unbiased; no hypotheses are advanced nor conclusions drawn. The reader has all the evidence with which to make his own deductions. A second volume is being prepared for publication and will treat of the relation of mouth infections to diseases of the respiratory, nervous, endocrine, excretory, reproductive, skeletal and muscular systems and to transmissible diseases. Report of research work on the bacteriology of periapical infections will also be published in this volume.

LES PLEXUS CHOROÏDES: ANATOMIE, PHYSIOLOGIE, PATHOLOGIE. Par Mme. le Dr. Nathalie Zand. Préface du Pr. Roussy. Paper. Price, 22 francs. Pp. 140, with 39 illustrations. Paris: Masson & Cie, 1930.

This short monograph is an excellent summary of knowledge of the choroid plexuses. The discussion of their physiology shows how far from established are many theories concerning the formation and circulation of the cerebrospinal fluid. The chapter on pathology demonstrates how unimportant are the choroid plexuses for neuropathology. There is some original material concerning the protective barrier between the blood and the cerebrospinal fluid, which the author locates in the leptomeninx.

UTERINE TUMORS. By Charles C. Norris, M.D., Professor of Gynecology and Obstetrics and Director of the Department, University of Pennsylvania. Leather. Price, $3. Pp. 251, with 14 illustrations. New York: Harper & Brothers, 1930.

In the preface the author points out the great frequency of uterine tumors. Fibroids occur oftener than any other tumors. Cancer of the cervix is the most frequent malignant growth. The first chapter deals with cervical polyps. Most important is the second chapter, devoted to cancer of the cervix. For statistical purposes, classification is provided. Norris recommends repair of every cervical laceration as prophylaxis. He recommends treatment of cancer by radium for some cases combined with trachelectomy. The value of the x-rays is discussed. For cancer of the body of the uterus, panhysterectomy is the treatment of choice. The next chapter deals with myoma of the uterus. Norris explains the contraindications to irradiation, which is the most preferable treatment. The last chapters deal with unusual growths, such as sarcoma of the body of the uterus and the tumors of the chorion.

CLINICAL AND EXPERIMENTAL EXAMINATIONS IN PATIENTS SUFFERING FROM MR. MENIÈRI INCLUDING A STUDY OF THE PROBLEM OF BONE CONDUCTION. Volume I. By Dida Dederding. Paper. Pp. 156. Helsingfors: Mercators Tryckeri Aktiebolag, 1929.

The author gives a detailed report of 135 cases examined and treated in the ear department of the municipal hospital at Copenhagen. She says: "We will for the present use the term Morbus Menièri as designating a disease which, as far as the ear is concerned, shows itself by a varying function both of the acoustic and static part, and with regard to which it has been possible to exclude any specific etiology (such as syphilis, parototis, encephalitis, tumors, diabetes, nephritis, professional disease of the internal ear or disseminated sclerosis). The symptoms of this affection are, as far as the ear is concerned, partly subjective, and are as follows: giddiness, buzzings and deafness, and partly objective: acoustic and vestibular abnormalities found on detailed examination of the functions." The diction is good, considering that the author is writing in a language foreign to herself. The text is English but the summary is given also in Danish. The examination of the acoustic function of the patients is carried out in great detail and with much care. The author observes the strict rules that govern the proper testing with tuning forks, whisper and conversation. She investigated the changing acoustic function under the influence of fluid metabolism. That hearing is influenced by water metabolism was particularly evidenced by experiments with mersalyl (N. N. R.), as increase of the diuresis together with the loss of weight and thirst appear in sympathy with a considerable increase of hearing in the course of some hours. On the other hand, an increased intake of fluids together with an increase of weight may reduce hearing. One chapter deals with experiments with mercury and water loading on patients who have undergone radical operations. Similar work was previously done by Runge and reported by him some years ago. The author concludes that the various clinical and acoustic phenomena found in these cases of Ménière's disease are explained from the point of view of a changing and increased labyrinthine pressure. She further states that hearing is influenced by water metabolism as evidenced by the experiments with mersalyl, in which an increase of the diuresis together with loss of weight is accompanied by considerable increase in hearing in the course of some hours. On the other hand, an increase in the intake of fluids together with an increase of weight may reduce the hearing. With reference to the changes in bone conduction compared with air conduction, the author is quite in agreement with the theories originally elaboated by Bézold. This monograph represents a tremendous amount of detailed and careful work and is accompanied by numerous tables showing the effect of the intake of drugs. From a scientific standpoint, at least, it is a valuable contribution to the literature on Ménière's disease.

CANCER OF THE BREAST. By William Crawford White, M.D., F.A.C.S., Junior Surgeon to the Roosevelt Hospital. Leather. Price, $3. Pp. 221, with 16 illustrations. New York: Harper & Brothers, 1930.

The first two chapters deal with the anatomy and physiology of the breast. Most important, for the cancer question, is knowledge of the lymphatic drainage. Invasion of the axillary glands is an early and frequent event, while other glands are involved later. The early signs of cancer of the breast are enumerated. This knowledge is indispensable for every practitioner and will enable him to make early diagnosis. The later signs mean that not much chance for a cure is left. The seventh chapter gives the description of different varieties of breast cancer from the point of view of the pathologist. Concerning etiology, the author believes in chemical irritation as a factor in the cause of cancer of the breast. Of most actual interest is chapter XI, on roentgen therapy. White shows how difficult it is to judge the value of x-rays because of the difference of application as well as for the fact that mammary cancers are different. He does not regard roentgen rays as of much help in cases without glandular involvement but sees great improvement in cases with glandular involvement. Radium is regarded as of great help in the treatment of cancer. The operation requires the extirpation of the entire breast with the axillary glands. It is indicated in all operable cases. The book gives an excellent report of our present knowledge of the treatment of cancer of the breast and should be of value to every practitioner.

RADIOLOGISCHE PRAKTIKA. Herausgegeben von Prof. Dr. W. Alwens, usw. Band XIV: Allgemeine Grundlagen. Physik und Technik des Röntgenverfahrens. Von Dipl.-Ing. M. Brenzinger, A. Janitzky und Dr. E. Wilhelmy, Universitäts-Institut für physikalische Grundlagen der Medizin zu Frankfurt a. M. Mit einem Vorwort von o. ö. Univ.-Prof. Dr. Friedrich Dessauer. Cloth. Price, 25.50 marks. Pp. 237, with 275 illustrations. Leipzig: Georg Thieme, 1930.

This book is the fourteenth volume of a series of works on roentgenologic subjects under the title of Practical Radiology. Accordingly to the preface, by Dessauer, this series is a revival or continuation of an arbeit which he and Wiesner had produced in the series of special works on roentgenologic subjects, a revision of which was interrupted by the onset of the World War. The authors of this book have taken up the subject and have dealt with the physical and technical aspects of roentgenology in a thorough manner. The book is replete with detail that deserves most favorable comment. It is divided into three principal parts: the physics of roentgen rays, roentgen apparatus, and roentgen and other vacuum tubes. Were this work translated into English it would be welcomed by American roentgenologists and others interested in the physics and related phases of roentgen rays, their production and technical use. The authors have included much descriptive matter and illustrations of x-ray tubes and apparatus of American manufacture, which lends an international air to the work. Considerable space

is given to gas containing x-ray tubes of which American practitioners of the later years know little, but a chapter of the cathode ray tubes is evidence of the timely character of this splendid book.

TROPICAL MEDICINE. By Sir Leonard Rogers, C.I.E., M.D., B.S., Physician and Lecturer, London School of Tropical Medicine, and John W. D. Megaw, C.I.E., V.H.S., B.A., Major-General Indian Medical Service. Cloth. Price, $4 net. Pp. 536, with 77 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1930.

The authors have attempted to present a small handbook on the diagnosis, treatment and control of tropical diseases which will require only the simple technic within the resources of the practitioner in the tropics without any considerable treatment of the basic sciences, such as parasitology, bacteriology and pathology. In view of the reputation and experience of the authors, it is not surprising that they have done this so well. The volume is prepared primarily for the British Empire, but this means that practically all the so-called tropical diseases are considered. There are sections dealing with febrile diseases caused by protozoa by spirochetes, by organisms of uncertain origin, such as yellow fever and dengue, and by bacteria, such as plague and undulant fever. There are also sections on diseases caused by helminths, bowel diseases, skin diseases, snake-bite, deficiency diseases and diseases caused by heat and light. Of particular interest to physicians in the temperate zones is a discussion of the incidence of general diseases in the tropics. Throughout, the book is admirably written and illustrated. The selection of material is in general excellent. In some places, however, it would have been better had sections been omitted or more fully explained. Thus, a discussion is given of the methods of malaria control by mosquito reduction and yet no attention is paid to methods for determining which particular species of *Anopheles* is the carrier.

THE PREVENTION OF BLINDNESS. Report published by the League of Red Cross Societies. Paper. Pp. 112, with illustrations. Paris: League of Red Cross Societies, 1929.

This pamphlet deals with the formation of and minutes of the Constitutive Assembly of the International Association for the Prevention of Blindness, which was formed at Scheveningen in Holland in September, 1929, during the meeting of the International Congress of Ophthalmology. De Lapersonne of Paris was elected chairman and Dr. F. Park Lewis of Buffalo vice chairman, and the list of members numbers ophthalmologic and sociological representatives of nearly all the so-called civilized nations. The pamphlet contains some interesting information concerning the definition of blindness, the main causes of blindness in the various countries, an estimate of the blind census, the methods of prevention of blindness, and the aids for the visually weak school child. Every ophthalmologist should have the information here contained at his finger tips, while social workers, regardless of their field of endeavor, would do well to read and digest it. The International Society for the Prevention of Blindness bears great promise of carrying out ably the work so well started by the American Society for the Prevention of Blindness.

DIE WECHSELBEZIEHUNGEN ZWISCHEN DER TUBERKULOSEERKRANKUNG UND DEN GENERATIONSVORGÄNGEN IM WEIBLICHEN ORGANISMUS. Von Privatdozent Dr. Joachim Granzo, Oberarzt der Staatlichen Frauenklinik Danzig-Langfuhr. Paper. Price, 10.80 marks. Pp. 196, with 28 illustrations. Berlin: S. Karger, 1930.

The author reviews the extensive literature on the relationship that exists between tuberculosis and the female generative organs. He discusses in detail experimental work on guinea-pigs to determine the effects of intracardial injection with tubercle bacilli. He also takes up the question of extragenital tuberculosis as a cause of disease in the female genitalia and, the reverse of this, the effect of the cyclic changes in the reproductive organs on extragenital tuberculosis. He further analyzes the effect of pregnancy and the puerperium on the course of extragenital tuberculosis. The author himself has done a considerable amount of experimental work on this subject and he used nongravid, gravid and puerperal guinea-pigs for his experiments. He found that intracardial injections of tubercle bacilli produced no effect on nonpregnant uteri; but during pregnancy and the puerperium many uterine infections were observed after the injections. In the large majority of pregnant animals, abortion, premature labor and still births occurred. On the other hand, pregnancy and the puerperium have an unfavorable effect on tuberculosis outside the genitalia but the lungs are an exception. These organs in the guinea-pig are more resistant to tuberculosis during gestation than at other times. At the end of the book are fifteen pages of closely printed references. The book should prove helpful to internists, phthisiologists, gynecologists and obstetricians.

Medicolegal

Cancer Attributed to a Dental Plate

(Coddaire v. Sibley (Mass.), 169 N. E. 797)

In April, 1927, the defendant extracted nineteen teeth from a patient, Desjardins, which were all the teeth the patient had at that time. About two months later he took impressions for artificial plates and told the patient that his mouth was in good condition. The plates were inserted about the middle of September. At that time the patient complained of pain, and thereafter he made numerous visits to the defendant in an effort to have the plates comfortably fitted. At the last visit, in April, 1928, the defendant told the patient that a sore in the patient's mouth was just a little canker. He "burned" it and told the patient to put iodine on it. The patient sued, but died shortly after a verdict was returned in his favor, and his administrator was substituted as a party to the proceedings. The dentist appealed to the Supreme Judicial Court of Massachusetts.

A physician, who, according to the evidence, was a specialist in cancers and tumors, testified that he examined the patient, Nov. 25, 1928, and found a large mass extending from the angle of the left jaw, which practically filled the entire left side of the mouth. The mass was ulcerated and discharging. He made an electronic or radio blood test, he said, thereby excluding syphilis and tuberculosis. He did not, however, base his diagnosis of cancer on the electronic test alone, but he used that test to confirm his physical diagnosis. In his opinion, the patient was suffering from a sarcoma of the jaw, caused by a continued irritation due to the wearing of the dental plate. The dentist-defendant moved to strike out the testimony of this witness so far as it related to the electronic test and based one of his exceptions on the refusal of the trial court to grant this motion. But, said the Supreme Judicial Court, we have no means of determining whether the electronic test is of value as a method of diagnosing syphilis. The witness testified that the test was so used by probably two or three thousand physicians in the United States and that it had been in existence for about fourteen years. He did not base his diagnosis on the electronic test alone and would have made the same diagnosis regardless of the test. His testimony was not incompetent, and, said the court, it cannot be said as a matter of law that it was of no value. The weight to be given to the testimony of this witness respecting the electronic test was for the jury.

The plates were admitted in evidence and showed that they were rough in places and would tend to cause irritation. There was testimony to show that the plates were not made in a good and workmanlike manner. The defendant contended, however, that there was no evidence to show that they were defective during the time the patient wore them, and that they had been tampered with after the defendant last adjusted them. The defendant contended further that there was no sufficient evidence to warrant a finding that the patient was suffering from cancer, or, if there was such evidence, that the cancer was caused by the condition of the plates. The jury, however, said the Supreme Judicial Court, was not required to believe the testimony of the experts called by the defendant-dentist, to the effect that the plates did not cause the condition of the patient. Whether the patient had a cancer, and whether it was caused by the lack of reasonable skill on the part of the defendant or was due to other causes for which the defendant was not responsible, were questions of fact for the jury to decide.

Even if there had been no evidence to prove that the illness from which the patient suffered was caused by a cancer, the trial court could not rightly have directed a verdict for the defendant; there was evidence of negligence of the defendant in the making and inserting of the plates in the plaintiff's mouth, thereby causing much pain and suffering to the patient, irrespective of the cancerous growth.

The exceptions of the defendant were overruled and the judgment in favor of the patient allowed to stand.

Roentgen Burns and the Presumption of Negligence

(Moore v. Steen (Calif.), 283 P. 833)

The defendants, as physicians, were employed by the plaintiff to find out what was ailing him. In the course of their examinations, the plaintiff suffered a third degree roentgen burn. He brought suit, alleging carelessness and unskilfulness on the part of the physicians. At the close of his evidence, the court, on motion of the defendants, dismissed the case. The plaintiff thereupon appealed to the District Court of Appeals, Fourth District, California.

The only element of proof, said the appellate court, that is subject in this case to a question as to its sufficiency, is the evidence to prove that the injury sustained was owing to the defendants' negligence; unless the doctrine of res ipsa loquitur applies, the evidence of negligence is extremely meager and depends on the process of elimination. The evidence showed three possible causes for the patient's injury: first, negligent and dangerous excess of electric current in the roentgen apparatus; second, hypersensitiveness of the patient, unknown to the defendant; third, latent defects in the roentgen apparatus, or dispersion of secondary rays in its operation. The evidence showed that the patient was not hypersensitive. The defendants argued that, although the evidence excluded hypersensitiveness, it showed that the burn could have resulted from two possible causes, either negligence or unskilfulness in the operation of the roentgen-ray apparatus or hidden defects in that apparatus; and they pointed out that the evidence adduced by the patient did not exclude hidden defects in the apparatus as the cause of the burn. But, said the appellate court, we doubt if the burden of eliminating that possible explanation of the patient's injury can be thrown on the patient. The apparatus used had been long in the possession of the defendants; if it possessed latent defects, its power for evil would have developed before this patient was treated. On the other hand, the patient himself could have no possible previous knowledge nor means of discovering secret and undisclosed possibilities of the apparatus. It would seem no more than reasonable, therefore, that the doctrine of res ipsa loquitur should apply, at least to the extent of throwing the burden of proof on the defendants to show the existence of some faulty condition in the apparatus, that was beyond their knowledge or control and that would relieve them of the implication of negligence in its operation.

The weight of authority in recent decisions in other jurisdictions is against the general application of the doctrine of res ipsa loquitur to the use of the roentgen ray, and ordinarily the doctrine cannot be applied in cases of alleged malpractice by physicians in the treatment of disease. It is to be noted, however, that the present case is not based on the treatment of disease, but on diagnosis. A distinction between the use of roentgen ray for treatment and its use for diagnosis is recognized in the decisions, the reason for which is pointed out in *Ewing* v. *Goode* (C. C.) 78 F. 442, 443. The Supreme Court of California, in *Ragin* v. *Zimmerman* (Calif. Sup.) 276 P. 107, a personal injury case based on the diagnostic use of the roentgen ray, held that the doctrine of res ipsa loquitur might properly be applied. The Court of Appeals, therefore, in the present case, held that there was affirmative evidence tending to support a finding that the injuries to the patient could not be attributed to latent and undiscovered defects in the roentgen apparatus but was caused by the negligence of the defendants. In any event, said the court, the case was one for the application of the doctrine of res ipsa loquitur.

The judgment of the trial court in favor of the physician-defendants was reversed.

Eyesight and Motor Vehicle Accidents.—The appellant railway company contended that the deceased was guilty of negligence as a matter of law, in riding in an automobile driven by a man with only one eye. But, said the District Court of Appeals, First District, Division 2, California, no authority was cited in support of that contention. The only testimony regarding the eyesight of the operator of the motor vehicle was to the effect that he lost his left eye some sixteen years before the accident; that he had been driving an automobile for eight or nine years prior to the accident; and that so far as he knew his vision was not affected by the missing eye, and that the eyesight of the remaining eye was good. The fact that he was blind in one eye was a fact to be considered by the jury with all the other facts and circumstances in the case, in determining whether the deceased was guilty of contributory negligence in riding with him.—*Krause et al. v. Rarity et al. (Calif.), 283 Pac. 886.*

Workmen's Compensation Acts: Notice of Injury.—It is not disputed, says the Court of Civil Appeals of Texas, Eastland, that mental and physical inability to give notice and file claim is a good cause for failure to do so. That the employee did not believe his injuries to be serious would clearly afford a good cause for not giving notice and filing claim until it was learned that they were serious. Compensation is not provided for pain and suffering but for loss of wages, and there would arise no necessity for giving notice or filing a claim so long as the employee lost no time from his work and believed his injuries were trivial.—*Texas Employers' Insurance Association v. Clark (Texas), 23 S. W. 405.*

Fright as an Actionable Injury.—Fright caused by negligence is not of itself a cause of action and none of its consequences can give rise to a cause of action. If, however, in escaping from a trolley car, the passenger came into contact with a broken trolley wire and was burned, he has a cause of action, no matter how slight the burn may be.—*Kentucky Traction & Terminal Co. v. Roman's Guardian (Ky.), 23 S. W. (2d) 272.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Chicago, Oct. 6-10. Dr. C. C. Vinton, 1650 Broadway, New York, Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Central Association of Obstetricians and Gynecologists, Kansas City and Excelsior Springs, Missouri, October 9-11. Dr. E. D. Plass, University Hospital, Iowa City, Iowa, Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Delaware, Medical Society of, Dover, Oct. 14-15. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Mississippi Valley Conference on Tuberculosis, Rockford, Ill., October 14-16. Dr. Robinson Bosworth, Box 1005, Rockford, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Pennsylvania, Medical Society of the State of, Johnstown, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Vermont State Medical Society, Burlington, October 2-3. Dr. William G. Ricker, 33 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Annals of Medical History, New York

2: 351-452 (July) 1930

Physician of Dance of Death. A. S. Warthin, Ann Arbor, Mich.—p. 351.
Stephen Girard and Great Epidemic of Yellow Fever in 1793, and Lesser Outbreaks in 1787, 1798, 1802 and 1820. H. A. Hare, Philadelphia.—p. 372.
History of Substances Known as Aphrodisiacs. H. S. Denninger, Chicago.—p. 383.
History of Syphilis. J. L. Miller, Chicago.—p. 394.
Hieronymus Fracastorius. D. W. Montgomery, San Francisco.—p. 406.
Historical Survey of Gonorrhea. E. W. Hirsch, Chicago.—p. 414.
Aretaeus the Cappadocian: Contribution to Diabetes Mellitus. E. J. Leopold, Baltimore.—p. 424.
Practice of Medicine Among Aborigines. H. Jones, Circleville, Ohio. —p. 436.

Annals of Surgery, Philadelphia

92: 161-320 (Aug.) 1930

*Osteoperiosteal Bone Grafts. G. M. Dorrance, Philadelphia.—p. 161.
*Biopsy by Needle Puncture and Aspiration. H. E. Martin and E. B. Ellis, New York.—p. 169.
Traumatic Lesions of Brachial Plexus: Seven Cases. T. A. Shallow, Philadelphia.—p. 182.
Cause and Elimination of Reactions After Intravenous Infusions. L. Rademaker, Philadelphia.—p. 195.
*Hyperparathyroidism. J. de J. Pemberton and K. B. Geddie, Rochester, Minn.—p. 202.
*Treatment of Acute Empyema Thoracis. L. C. Foster, New Haven, Conn.—p. 212.
*Bacteriologic and Clinical Study of Gastric Ulcer. E. W. Saunders, New York.—p. 222.
*Acute Ulcerations of Stomach in Children. B. R. Shore, New York. —p. 234.
Annular Pancreas Involved in Acute Hemorrhagic Pancreatitis. O. A. Brines, Detroit.—p. 241.
Subacute Pancreatitis or So-Called Acute Edema of Pancreas. D. Stetten, New York.—p. 248.
*Ectopic Spleen Causing Intestinal Obstruction. A. A. Salvin, New York.—p. 263.
Intestinal Obstruction. L. Antupit and D. F. Sullivan, Hartford, Conn. —p. 270.
Use of Perfringens Antitoxin in Intestinal Obstruction. J. P. North, Philadelphia.—p. 277.
*Prevention of Peritoneal Adhesions by Amniotic Fluid. J. T. Lacey, Philadelphia.—p. 281.
Pathologic Study of Posterior Vesical Neck Obstruction. A. E. Bothe, Philadelphia.—p. 294.

Osteoperiosteal Bone Grafts.—Observations from both experimental and clinical studies have convinced Dorrance that the ideal conditions for successful osteoperiosteal bone grafts are as follows: The osteoperiosteal bone graft should contain a good supply of bone with the periosteum. The periosteum that is stripped from the bone will not develop bone. One must be just as careful to fasten the graft to the bone as in full thickness graft. The same care must be used in preparing the bed for the reception of the graft as in full thickness graft. It requires a longer time for the graft to become solid. In all bone graft surgery, one should secure as complete immobilization as possible during the first two months. The thickness and strength of the graft depend on the amount of weight bearing that is required.

Biopsy by Needle Puncture and Aspiration.—Martin and Ellis plead strongly for biopsy by aspiration. They feel that it has few, if any, disadvantages to the patient from the surgical standpoint. The interpretation of the histologic picture (especially of the smears) requires both an experienced and a sympathetic pathologist. Undoubtedly, larger specimens uniformly fixed and stained offer more satisfactory material on which to render a definite opinion, but such a preparation can too often be obtained only at considerable disadvantage to the patient or too late to be of any particular value in outlining treatment. They do not advocate this method of biopsy in any case in which larger specimens of tissue can be secured readily and safely by any other method. The chief disadvantage of biopsy by aspiration is that one diameter of the specimen is very small—the same as the bore of the needle. In such a small specimen the characteristic cell arrangement may be difficult to determine as, for instance, in glandular carcinoma. In a smeared specimen it is usually lost entirely. While the lack of definite cell arrangement in smears or very small fragments often prevents accurate classification of the lesion, one is still able to definitely determine whether such tissue is malignant or benign.

Hyperparathyroidism.—A case of hyperparathyroidism in a young girl is described by Pemberton and Geddie in which symptoms were due to excessive parathyroid secretion caused by a parathyroid adenoma. The symptoms and data include progressive weakness and loss of muscular tonus, attacks of abdominal pain and vomiting, anemia, polydipsia and polyuria, hypercalcemia and hypophosphatemia, and diffuse decalcification of the skeleton. Data concerning six other proved cases and three not proved by operation were gathered from the literature. The surgical removal of the parathyroid tumor in the case reported was followed by marked relief from all symptoms.

Treatment of Acute Empyema Thoracis.—One hundred and fifty-three consecutive cases of postpneumonic empyema are reported by Foster, treated by delayed costectomy and constant suction tube drainage, with uniform and complete obliteration of the empyema cavity except in one case. From a study of this series he believes that: Death should never result from empyema thoracis per se. Chronic empyema should not occur in properly treated cases of acute suppurative pleurisy. The basis of the determination of a cure should be the disappearance of all signs of sepsis, a complete obliteration of the empyema cavity as well as a healed superficial wound, and a long time follow-up.

Bacteriologic and Clinical Study of Gastric Ulcer.—A streptococcus has been isolated by Saunders from nineteen resected gastric, duodenal and gastrojejunal ulcers and proved to be identical and specific by differential cultural tests and by agglutination, cross-agglutination and agglutinin absorption. Its agglutinogenic and antigenic identity with similar strains producing ulcers of mucous membrane and skin has been demonstrated, and likewise its nonidentity with strains from foci of infection and appendicitis and cholecystitis has been shown. Patients suffering from gastric ulcer have this organism's specific agglutinins in their blood serum in 100 per cent of cases tested, while those suffering from any other type of streptococcus infection fail to agglutinate it or only in low titer. The organism is apparently present in the lesion in immediately prepared Levaditi tissue sections. The organism undergoes dissociation S (virulent) to R (nonvirulent) under artificial cultivation and the possibility of it doing likewise in vivo has been demonstrated. The S (virulent) form will not grow in bile in low dilutions and the O (intermediate) form rapidly becomes R (nonvirulent) under bile cultivation. Surgical procedures which return bile to the ulcer-bearing area give the best clinical results. The marked degree of lactic acid formation by this streptococcus has been noted and its relationship to carcinomatous degeneration suggested.

Acute Ulcerations of Stomach in Children.—An acute, fatal, perforated ulceration of the stomach wall is reported by Shore in a female infant, aged 22 months. The history of ill health for only two days, the site of the ulcer on the posterior wall near the fundus of the stomach and the lack of all signs of a chronic ulcer lead one to assume that the changes noted are of an acute and rapidly destructive nature. The markedly hemorrhagic edges of the necrotic area suggest that the primary lesion was one of hemorrhage, either from local injury, overdistention or vascular thrombosis, and that gastric digestion of this area caused the perforation. This case is of especial interest in that the perforation was found and measured at operation before postmortem digestion became manifest.

Ectopic Spleen Causing Intestinal Obstruction.—An unusual case of ectopic spleen is reported by Salvin. The organ occupied the left lower quadrant of the abdomen, in the sigmoid axis, and pressed on the descending colon and sigmoid so as to cause intestinal obstruction. Its pedicle was twisted. Splenectomy was performed. The patient made a good recovery; but, two months later, she suddenly developed anuria and died.

Prevention of Peritoneal Adhesions by Amniotic Fluid.—The results of Lacey's investigation are not in accord with those reported previously. In only two of twenty-six treated animals which survived for a sufficient period was a complete absence of peritoneal adhesions observed. It would appear that amniotic fluid has no undesirable effect on a catgut suture line and that it does not prevent the formation of protective adhesions. It cannot be depended on to prevent adhesions, although it possibly does modify the density of these.

Archives of Dermatology & Syphilology, Chicago

22: 201-380 (Aug.) 1930

Syphilology of Today and Tomorrow. J. H. Stokes, Philadelphia.—p. 201.
Fungistasis in Ringworm of Toes and of Feet: I. Salicylic and Benzoic Acids. A. G. Gould and E. K. Carter, Ithaca, N. Y.—p. 225.
Association of Clinical Neurosyphilis with Various Types of Tertiary Syphilis. H. H. Hopkins, Baltimore.—p. 232.
Hypersensitiveness of Skin to Arsphenamine as Determined by Contact Test. L. Chargin, M. B. Sulzberger and D. F. Crowley, New York.—p. 237.
Eczema: To Be or Not to Be. R. Friedman, Philadelphia.—p. 244.
Ear Phone Dermatitis: Case. J. J. Eller, New York.—p. 268.
Rhinophyma with Carcinomatous Degeneration: Case. F. G. Novy, Jr., Ann Arbor, Mich.—p. 270.
Late Congenital Syphilis: Case. A. Eljasz, Lwow, Poland.—p. 274.
Paget's Disease of Male Nipple and Areola. M. W. Rubenstein, Pittsburgh.—p. 281.
Histopathology of Angiokeratoma. S. C. Way, San Francisco.—p. 301.
Coincidences in Medicine. H. H. Hazen, Washington, D. C.—p. 305.
Ichthyosis Hystrix in Chinese. J. McFarland, Philadelphia.—p. 307.

Canadian Medical Assn. Journal, Montreal

23: 137-332 (Aug.) 1930

Dyspepsia. R. Hutchison, London.—p. 137.
Review of Certain Physiologic Properties of Insulin. C. H. Best, Toronto.—p. 141.
Surgical Problems Presented by Diabetic. A. T. Bazin, Montreal.—p. 146.
Pitfalls in Clinical Application and Interpretation of Basal Metabolic Rate. J. M. Rahimowitch, Montreal.—p. 152.
Surgical Treatment of Tuberculous Empyema. E. Archibald, Montreal.—p. 160.
Late Results of Living Suture Operation in Ventral and Inguinal Hernia. W. E. Gallie and A. B. LeMesurier, Toronto.—p. 165.
Maternal Mortality as Public Health Problem. M. R. Bow, Edmonton.—p. 169.
Health Insurance in British Columbia. J. H. MacDermot, Vancouver.—p. 173.
Diphtheria Toxoid in Prevention of Diphtheria in Canada. J. G. FitzGerald, Toronto.—p. 178.
Mechanism of Cancer Development. H. Oertel, Montreal.—p. 183.
Radical Treatment of Traumatic Epilepsy and Rationale. W. Penfield, Montreal.—p. 189.
Carcinoma of Thymus with Extensive Metastases in New-Born Child: Case. G. V. Bedford, Winnipeg.—p. 197.
Chronic Syphilitic Glomerulonephritis with Demonstration of Spirochetes in Kidney: Case. J. Miller and W. D. Hay, Kingston.—p. 202.
Pathology of Primary Carcinoma of Lung. W. Boyd, Winnipeg.—p. 210.
Anomalies of Genito-Urinary Tract. A. C. Abbott, Winnipeg.—p. 217.
*Ethyl Chloride. V. E. Henderson and A. S. Kennedy, Toronto.—p. 226.
*Enteral Infections in Acute Intestinal Intoxication. M. M. Johnston, A. Brown and F. F. Tisdall, Toronto.—p. 231.
Liver Therapy in Treatment of Subacute Combined Degeneration of Cord. R. F. Farquharson and D. G. Graham, Toronto.—p. 237.
Hypernephroma with Virilism in Child of Three Years. G. W. Harris and D. F. Plewes, Brantford.—p. 244.
Undulant Fever in Alberta. J. S. Murray, Calgary.—p. 247.
Aneurysm: Four Cases. H. E. MacDermot, Montreal.—p.248.
Dacryocystitis Leading to Orbital Phlegmon, Optic Neuritis and Atrophy: Case. W. E. Scott-Moncrieff, Victoria, B. C.—p. 251.
Rupture of Congenital Aneurysm of Middle Meningeal Artery. W. A. Harvie and L. A. Chase, Regina, Sask.—p. 252.

Ethyl Chloride.—Henderson and Kennedy present a series of twenty-two fatalities and three serious results occurring in connection with the use of ethyl chloride as a general anesthetic, with indications of the clinical findings, postmortem observations, and the type of death. They believe that the best method of giving ethyl chloride is the open method. A mask covered with from six to eight layers of gauze should be held about 1 inch clear of the face and the ethyl chloride dropped on to it at the rate of from 20 to 30 drops per minute, the number of drops depending on their size and the patient. Ethyl chloride should never be sprayed on a closely applied mask. The mask is lowered slowly, reaching the face in one and a half to two minutes. Within three minutes, often less, respiration becomes deep and regular. The eye signs are not characteristic of deep anesthesia, as the pupils are not very small and the eyeball rolling. Minor operations can now be performed, or the mask changed and ether begun. A mask soaked with ethyl chloride should not be used for ether as the different volatility and boiling points of the two liquids make it impossible to foretell what anesthetic mixture the patient may receive. If the patient is carried with ethyl chloride till the eye signs are those of third stage anesthesia, cessation of rolling and small pupil, there seems to be grave danger of an overdose, judging by the literature. Spasm is less marked when the anesthetic is given slowly, but if it becomes marked a change should be made to ether at once.

Enteral Infections in Acute Intestinal Intoxication.—A study of 171 cases of intestinal intoxication has convinced Johnston et al. that intestinal intoxication is not due to masked infection in the middle ears or mastoid antrums. Intestinal intoxication is an enteral infection caused not by one specific bacterial species but by a variety of bacilli which belong to the colon-typhoid-dysentery group. Their connection with the patients' condition seems to have been substantiated by the demonstration of immune bodies in the serum of some patients.

Canadian Public Health Journal, Toronto

21: 369-422 (Aug.) 1930

Why Vital Statistics? R. H. Coats, Ottawa.—p. 369.
Poliomyelitis—Clinical Study. G. A. Campbell and S. Mirsky, Ottawa.—p. 375.
Grancher System, as Applied in Province of Quebec, for Protection of Childhood Against Tuberculosis. E. Nadeau, Quebec.—p. 382.
Food Poisoning Epidemic Probably Due to Cheese. R. P. Hardman and N. E. McKinnon, Toronto.—p. 387.
*B. Dysenteriae Sonne Infections. M. M. Johnston and A. Brown, Toronto.—p. 394.
Report on Some Fulminating Cases of Cerebrospinal Fever. W. D. Hay, Kingston.—p. 403.

Bacillus Dysenteriae Sonne Infections.—Twenty strains of *B. dysenteriae* Sonne have been isolated by Johnston and Brown in the Hospital for Sick Children, Toronto, from 177 patients. Eighteen of these strains were obtained in the investigation of 175 cases admitted with a clinical diagnosis of either intestinal intoxication or infectious diarrhea; 2 were from pyelitis cases. Feces examinations yielded seventeen strains (one strain was isolated from feces and colon), urine one, gallbladder at autopsy one, colon at autopsy one. Eight strains were obtained from cases which terminated fatally. No strains were found in the examination of the feces or autopsy material from 108 control cases. Two serologic groups exist among strains of this species of micro-organism isolated by us. Evidence that *B. dysenteriae* Sonne had etiologic relationship with the condition of the patients has been substantiated by the demonstration of the presence of antibodies in the serums of seven cases from whom strains of *B. dysenteriae* Sonne were isolated. The serums of twenty-nine additional patients from whom no strains were isolated agglutinated *B. dysenteriae* Sonne in dilutions from 1:40 to 1:1,280. Twenty agglutinated the Nabarro strain, nine the Ridgers strain. The absence of such antibodies was noted in the serums of thirty-one out of thirty-three control children. A saline solution which consisted of sodium chloride 0.9 per cent and p_H 7.4 was found to be most satisfactory for the serologic tests. The water-bath temperature was maintained at 52 C. for the agglutination tests and at 37 C. for the absorption tests which were carried out with these strains.

Delaware State Medical Journal, Wilmington

2: 133-150 (Aug.) 1930

Delaware's Population. A. C. Jost, Dover.—p. 133.
Suggestions from a Laboratory Director. R. D. Herdman, Dover.—p. 137.
Endemic Typhus Fever (Brill's Disease). E. F. Smith, Georgetown.—p. 139.
Preventable Causes of Death Among Infants and Children. C. A. Sargent, Dover.—p. 141.

Florida Medical Association Journal, Atlanta

17: 53-98 (Aug.) 1930

Newer Methods in Treatment of Neisserian Infection in Female. J. M. Bryant, Jacksonville.—p. 61.
Spider Poisoning from Bite of Latrodectus Mactans, or Black Widow Spider. H. E. Palmer, Tallahassee.—p. 64.
Fractures of Outer End of Clavicle—Simple Dressing. G. H. Edwards, Orlando.—p. 70.
Responsibilities of Railway Surgeon. H. D. Van Schaick, Jacksonville. —p. 73.
Cardiac Pain. E. F. Wahl, Thomasville, Ga.—p. 74.
Local Anesthesia in Tonsillectomy. R. J. Pearson, Miami.—p. 78.
Intraspinal Block. R. A. Woolsey, St. Louis.—p. 79.
Discussion of General Principles Underlying Diagnosis and Treatment of Fractures. J. S. Turberville, Century.—p. 81.

Illinois Medical Journal, Oak Park

58: 77-156 (Aug.) 1930

Profession—Incorporated. C. B. Reed, Chicago.—p. 89.
Pathologic Thymus in Children from Roentgenologic Standpoint. W. H. Gilmore, Chicago.—p. 97.
Sarcoma of Bladder: Case. L. D. Smith, Chicago.—p. 105.
Operative Measures in Treatment of Low-Back Pain. W. C. Campbell, Memphis, Tenn.—p. 110.
Prophylactic Care in Infancy. J. Greengard, Chicago.—p. 113.
External Popliteal Nerve Injuries. D. F. Clark, Evanston.—p. 117.
Present Status of Epidemic Encephalitis Lethargica. H. S. Hulbert, Chicago.—p. 121.
What Physicians of Illinois Have Right to Expect from Cook County Hospital. E. K. Kerr, Oak Park.—p. 129.
Making of Surgeon. G. de Tarnowsky, Chicago.—p. 131.
Psychic Impotence in Male. J. Welfeld, Chicago.—p. 134.
Disorders of Urination. J. S. Eisenstaedt, Chicago.—p. 140.
Education and Training of Nurse. W. A. N. Dorland, Chicago.—p. 142.
Acute Intestinal Obstruction. H. P. Miller, Rock Island.—p. 145.
Treatment of Squint in Children. C. S. O'Brien, Iowa City.—p. 150.
Sources of Entry of Puerperal Infection: Methods of Prevention. D. H. Bessesen, Minneapolis.—p. 153.

Journal of Cancer Research, New York

14: 325-485 (Aug.) 1930

Lymphoid Hyperplasia in Mice. F. M. Hill, Exeter, Calif.—p. 325.
Relation Between Division Rate and Radiosensitivity of Cells. C. Packard, New York.—p. 359.
*Serologic Diagnosis of Cancer: I. W. M. Wright and C. G. L. Wolf, Cambridge, Mass.—p. 370.
*Cytologic Study of Hodgkin's Disease, Lymphosarcoma and Lymphatic Leukemia. W. C. MacCarty, Rochester, Minn.—p. 394.
Chromosome Number in Cancer Tissue of Man, of Rodent, of Bird and in Crown Gall Tissue of Plants. M. Levine, New York.—p. 400.
*Effect of Radiation on Blood Cholesterol in Malignant Disease. W. L. Mattick and M. C. Reinhard, Buffalo, N. Y.—p. 426.
Mouse Leukemia: II. Hereditary Susceptibility to Inoculated Leukemia. E. C. MacDowell and M. N. Richter, New York.—p. 434.
Histologic Study of Salivary Gland Tumors. A. A. Thibaudeau and E. M. Burke, Buffalo, N. Y.—p. 440.
Cancer in Egypt. F. L. Hoffman, Wellesley Hills, Mass.—p. 444.
Tumors in Captive Primates with Description of Giant Cell Tumor in a Chacma Baboon, Papio Porcarius. H. L. Ratcliffe, Philadelphia. —p. 453.
New Model Radium Emanation Plant. A. J. Allen, Philadelphia.—p. 461.
Quadruple Inoculations of Adenocarcinoma. J. J. Bittner, Bar Harbor, Maine.—p. 466.
Detection of Small Quantities of Lead in Tissues. F. C. Wood, New York.—p. 476.

Serologic Diagnosis of Cancer: I.—An examination of the Fuchs reaction for the diagnosis of malignant conditions on the basis of the action of serums from cancer patients on normal fibrin has been made by Wright and Wolf. The results are confirmatory of his claims for the method. The reaction appears to be one following Schutz's law. The reaction increases in velocity up to 45 C. and stops at 56 C. It is, within certain limits, dependent on the amount of substrates used. Other protein constituents of the blood cannot be utilized for the test, but washed muscle suitably treated can be used instead of fibrin, though this product loses its characteristics on standing much more easily than does fibrin itself. An alternative method of following the reaction by alcohol titration of the products of proteolysis is described. No case diagnosed clinically as malignant has so far fallen into the group of cases giving a negative reaction.

Cytologic Study of Hodgkin's Disease, Lymphosarcoma and Lymphatic Leukemia.—MacCarty states that Hodgkin's disease, lymphosarcoma and lymphatic leukemia have a common neoplastic cellular origin, the overgrowth of cells sometimes remaining well confined in the node (Hodgkin's disease), sometimes invading the surrounding tissues (lymphosarcoma), and sometimes invading the lymph and blood streams (lymphatic leukemia). The cytologic observations presented do not suggest that there should be either common or different etiologic factors.

Effect of Radiation on Blood Cholesterol in Malignant Disease.—The cholesterol content of the blood of twenty-five cancer patients was determined by Mattick and Reinhard before irradiation with high voltage roentgen ray and after irradiation at one-half hour intervals over a period of three hours, thus supplementing a previous study on the blood of thirty-six cancer patients. No characteristic change in the cholesterol level in the whole blood of the cases studied could be noted in this three hour period. The authors conclude that high voltage roentgen or gamma radiation causes a decrease in the cholesterol content of blood from the preirradiation level and that this seems to constitute its most characteristic effect on this blood constituent.

Journal of Clinical Investigation, Baltimore

9: 1-190 (Aug. 20) 1930

Association of Renal and Gastric Disorders with Constancy of Urinary Reaction. R. S. Hubbard, Clifton Springs, N. Y.—p. 37.
Pneumococcidal Power of Whole Blood: Description of Method. Results in Individuals with No History of Lobar Pneumonia. W. D. Sutliff and D. R. Rhoades, New York.—p. 43.
Id.: II. Estimations in Lobar Pneumonia. W. D. Sutliff and D. R. Rhoades, New York.—p. 55.
Velocity of Blood Flow: XIII. Circulatory Response to Thyrotoxicosis. H. L. Blumgart, S. L. Gargill and D. R. Gilligan, Boston.—p. 69.
Id.: XIV. Circulation in Myxedema with Comparison of Velocity of Blood Flow in Myxedema and Thyrotoxicosis. H. L. Blumgart, S. L. Gargill and D. R. Gilligan, Boston.—p. 91.
*Diagnostic Value of Determinations of Pepsin in Gastric Juice. W. S. Polland and A. L. Bloomfield, San Francisco.—p. 107.
Surface Capillaries in Man Following Cervicothoracic Sympathetic Ganglionectomy. G. E. Brown, Rochester, Minn.—p. 115.
*Icterus Neonatorum: III. Oxygen Capacity and Saturation of Mother and Fetus. A. Goldbloom and R. Gottlieb, Montreal.—p. 139.
*Functional Pathology of Hyperparathyroidism. H. A. Bulger, H. H. Dixon and D. P. Barr, St. Louis.—p. 143.

Diagnostic Value of Determinations of Pepsin.—The concentration and total output of pepsin have been studied by Polland and Bloomfield in a series of normal subjects and in people with various gastric lesions. It was found that in normal subjects the maximum ten-minute volume of stomach juice digested from 16,900 mg. to 112,400 mg. of edestin. The ulcer cases fell within the same general range. In people with pernicious anemia, cancer of the stomach and severe gastritis, the pepsin output was diminished, in some cases to extremely small amounts, but in only one person was pepsin completely undemonstrable. No correlation was found between pepsin output and acidity and it is suggested that the secretory mechanisms of the two are independent. Finally, it seems that very low pepsin output is a more delicate index of gastric damage than low acid values.

Icterus Neonatorum: Oxygen Capacity and Saturation of Mother and Fetus.—Goldbloom and Gottlieb assert that fetal arterial blood (umbilical vein) possesses an increased oxygen capacity and a diminished oxygen saturation. This diminution in oxygen saturation of the blood in the umbilical vein is to be accounted for by the deficient respiratory function of the placenta. The placenta is a relatively poor respiratory organ as compared to the postnatal lung. Maternal blood from the radial artery shows values for capacity and saturation which are within normal limits. Further evidence is thus adduced in support of their theory that the polycythemia in the new-born infant is the result of oxygen unsaturation of the fetus in utero. These statements are based on examinations made in twenty-five cases.

Functional Pathology of Hyperparathyroidism.—A study made by Bulger et al. of three cases of hyperparathyroidism, two with osteitis fibrosa cystica and the other with multiple myeloma, has presented certain abnormalities of calcium and phosphorus metabolism. Most characteristic of these were a high serum calcium, possibly accounting for many of the clinical features, and an excessive excretion of calcium by the kidneys, apparently explaining the urinary tract complications. The increase of calcium in the urine was sufficient to cause a negative calcium balance, although two patients showed, in addition,

an excessive output in the stools. Low serum phosphorus was repeatedly found except in one patient with marked kidney insufficiency. Altered phosphorus metabolism was encountered but no specific abnormality presented. There was no indication that the total nitrogen metabolism or creatinine is abnormal in hyperparathyroidism. Although there were marked changes in calcium and phosphorus, other serum electrolytes were normal. By the administration of orthophosphate it was possible to cause an increase in the serum phosphate, a decrease in serum calcium and a reduction of the calcium in the urine to normal, and to establish a positive calcium balance. It appears, however, that a continuation of this procedure resulted in an excessive output of calcium in the stools. Following parathyroidectomy in two patients, the disturbances of calcium and phosphorus metabolism were reversed. The calcium almost disappeared from the urine and large amounts of calcium and phosphorus were retained in the proportion in which they occur in the bone. One patient reverted to tetany, which was almost fatal. It was controlled with difficulty by the administration of large amounts of parathyroid extract and calcium. These studies indicate that improvement in the clinical state of hyperparathyroidism may be accomplished by the administration of orthophosphate. The possible dangers of such a procedure have been made evident. It would appear that the only effective method of treatment is the removal of parathyroid tissue.

Journal of Infectious Diseases, Chicago

47: 1-82 (July) 1930

Fungi of Genera Mycoderma (Desmazières) Vuillemin, Candida Berkhout and Cryptococcus Kuetzing Isolated from Skin During Epidemic of Perlèche. E. Pribram, Chicago.—p. 1.

Ringworm of Scalp Caused by Alternaria Tenuis Nees. E. Pribram, Chicago.—p. 11.

*Comparative Study of Hemolytic Streptococci from Patients Convalescent from Scarlet Fever. M. B. Kirkbride, M. W. Wheeler and C. D. West, Albany, N. Y.—p. 16.

*Types of Tubercle Bacilli Found in Tuberculous Lesions and in Nontuberculous Tissue in Man. J. D. Aronson and C. E. Whitney, Philadelphia.—p. 40.

Localization of Streptococci in Tissues of Rabbits. E. Valentine and M. Van Meter, San Francisco.—p. 56.

Study of Hemolytic Streptococci from Convalescent Scarlet Fever Patients.—Kirkbride et al. investigated eighty-five cases of scarlet fever to determine whether the type of hemolytic streptococci initially present became altered in any way during the course of the infection, or whether any relationship could be established between the reactions of a particular strain and the epidemiologic evidence of its ability to induce infections in human beings. From 50 to 60 per cent of the patients were found to be carriers of hemolytic streptococci at the end of the thirty day quarantine period required in New York State. While the clinical histories of forty-seven patients indicated that during the early stages of the disease from 20 to 30 per cent had probably been the source of the incitant of infections in other persons, only two, or less than 6 per cent, of thirty-four patients who were carriers of hemolytic streptococci at the time they were released from quarantine gave a history of being the probable source of the incitant of infections in persons in contact with them later. The strains isolated during the early stages of the disease from sixty typical cases of scarlet fever were found to vary widely with respect to their cultural, biochemical and serologic reactions and their toxigenicity. No fundamental differences, however, were observed between the streptococci isolated from the same or from different patients during the course of the disease or from healthy convalescent carriers as long as from two to six months after onset. Moreover, no differences were observed that could be correlated with the apparent infectivity of the strain at the time it was isolated. Comparative tests on a number of cultures of streptococci from each of eighteen patients showed that in twelve instances those isolated at the end of the quarantine period or later were identical in all their reactions with the streptococci isolated from the initial culture from the same patient. In five of the six cases in which they were not identical, the history of contact indicated the possibility of the transfer of the second type of streptococci from another patient known to harbor such a type. The usual cultural, biochemical and serologic tests and the tests for toxin production all fail to differentiate the hemolytic streptococci isolated from patients with scarlet fever from those from convalescent carriers or to indicate their probable pathogenicity for human beings. At present, therefore, a system of quarantine for scarlet fever based on a bacteriologic examination would be impracticable.

Types of Tubercle Bacilli in Tuberculous Lesions and in Nontuberculous Tissue.—From latent tuberculous lesions of human autopsy material there were isolated by Aronson and Whitney 83 cultures of the human type of tubercle bacillus, 3 cultures of the bovine type and 2 atypical strains. From progressive tuberculous lesions 96 cultures of the human type and 3 cultures of the bovine type were isolated. From lung tissue, pulmonary lymph nodes and mesenteric lymph nodes free from tuberculous lesions, there were isolated 38 cultures of the human type and 2 atypical cultures. Three of the bovine cultures were obtained from guinea-pigs inoculated with latent pulmonary tuberculous lesions from patients, aged 42, 65 and 65 years. Three cultures of bovine tubercle bacilli were obtained from the mesenteric nodes of children, aged 10 and 12 months and from the lung of the second child. The atypical strains of tubercle bacilli were isolated from 2 patients, aged 57 and 70 years. Two of these cultures were obtained from nontuberculous lesions and 2 from a latent tuberculous lesion.

Journal of Preventive Medicine, Baltimore

4: 251-337 (July) 1930

1928-1929 Influenza Epidemic in Cleveland. H. W. Green and H. L. Rockwood, Cleveland.—p. 251.

Skin Reactions to Dirofilaria Immitis in Persons Infected with Wuchereria Bancrofti. W. H. Taliaferro and W. A. Hoffman, Chicago.—p. 261.

Reactions Following Administration of Diphtheria Antitoxin and Toxin-Antitoxin: Results of Desensitization. J. A. Toomey and M. H. August, Cleveland.—p. 281.

Effect of Ultraviolet Light on Molds, Toxins and Filtrates. H. Welch, Cleveland.—p. 295.

Supposed Cultivation of Organisms of Human and Rat Leprosy. E. Muir, Calcutta, India.—p. 331.

Journal of Urology, Baltimore

24: 119-216 (Aug.) 1930

*Differential Diagnosis and Modern Treatment of Pyelonephritis. C. P. Mathé, San Francisco.—p. 119.

*Present Status of Kidney Functional Tests. B. A. Thomas, Philadelphia.—p. 141.

Thomas' Index of Elimination as Test of Renal Function. L. L. Maurer, Philadelphia.—p. 155.

Hydronephrosis Due to Obstruction of Renal Pelvis by One of Two Main Renal Arteries. D. N. Eisendrath, Chicago.—p. 173.

Renal Ectopy. M. F. Campbell, New York.—p. 187.

Bilateral Congenital Polycystic Kidney Duplex: Autopsy. F. H. Washburn, Holden, Mass.—p. 199.

Carcinoma in Diverticulum of Bladder. J. B. Hicks, Boston.—p. 205.

Myositis Ossificans Following Suprapubic Prostatectomy. H. H. Goldstein, Boston.—p. 211.

Diagnosis and Treatment of Pyelonephritis.—The modern treatment of chronic pyelonephritis, Mathé says, consists of systematic eradication of all possible foci of infection, of the elimination of stasis in the upper and lower urinary tract, of routine drainage and lavage alternating silver nitrate with the penetrating dyes, and of the employment of local immunization by the injection of the filtrate directly into the renal pelvis. Unfortunately, in many instances, because of delay in seeking treatment, irreparable damage has occurred before these measures were undertaken. Of the 347 cases studied and observed over a period of years, 45 were absolutely unimproved. Thirty of these presented stasis either in the upper or lower urinary tract, which was an unquestionable factor in lowering the resistance of the kidney, making it more susceptible to infection. One hundred and fifteen showed only slight improvement, which consisted of more or less transitory amelioration of symptoms but in which, however, the urine remained infected. Because of progressive destruction of the kidney, nephrectomy was resorted to in fifteen cases for the following reasons: pyonephrosis, eight cases; advanced pyelonephritis with recurrent stone formation, three cases; persistent hemorrhagic pyelonephritis, 2 cases, and pyelonephritis with atrophy and obliteration of the ureter, two cases.

Status of Kidney Functional Tests.—In the management and diagnosis of upper urinary tract disorders of the kidney

and ureter in which unilateral or separate functional tests become indicated, indigo carmine, intravenously by the method of chromo-ureteroscopy, has in Thomas's experience proved itself to be the most practical and best, and well-nigh infallible.

Maine Medical Journal, Portland

21: 119-132 (July) 1930

Suggestions on Treatment of Syphilis. B. B. Foster, Portland.—p. 125.

New England Journal of Medicine, Boston

203: 295-340 (Aug. 14) 1930

Symptoms and Signs of Tumors Involving Spinal Cord. J. B. Ayer, Boston.—p. 295.
Diagnostic Service for Epidemic Meningitis. H. R. Viets, Boston. —p. 301.
Psychoneuroses in General Practice. L. K. Lunt, Concord, Mass. —p. 301.
Neuritis. F. R. Ober, Boston.—p. 308.
Etiology of Psychoneuroses Encountered in Practice of Internal Medicine. G. P. Reynolds, Boston.—p. 312.
Gastrostomy as Palliative Measure. E. M. Daland and A. A. Palermo, Boston.—p. 317.
*Anemia in Infants and Children. J. M. Baty, Boston.—p. 319.
*Outbreak of Milk-Borne Sore Throat. E. A. Lane and G. W. Anderson, White Plains, N. Y.—p. 324.
*Comparative Effect of Different Iodine Preparations in Preoperative Treatment of Thyrotoxicosis. M. N. Fulton and H. L. Alt, Boston. —p. 327.

Anemia in Infants and Children.—An analysis of 400 cases by Baty showed: anemia of prematurity, 64 cases; congenital anemia, 28 cases; dietary anemia, 30 cases; anemia associated with infection, 193. Certain features are emphasized: The hematopoietic system of the infant and, to a lesser degree, of the child, is unstable and may react in a bizarre manner to stimuli. The normal blood values vary considerably and change rapidly during the first year of life. The widely different prognostic and therapeutic indications in the conditions mentioned demand careful study leading to accurate diagnosis of the anemias in infancy and childhood. A physiologic anemia occurs in prematurely born infants. Splenectomy is of value in well established cases of primary thrombopenic purpura; Banti's disease; splenomegaly with gastric hemorrhage; Gaucher's disease; hemolytic jaundice, and sickle-cell anemia. The feeding of iron in large doses and of whole liver is a valuable adjunct in the treatment of anemia. Transfusion is necessary only in rare instances.

Outbreak of Milk-Borne Sore Throat.—An explosive outbreak of sore throat numbering 178 cases occurred in a small Massachusetts community of less than 3,000 population, in March, 1930. According to Lane and Anderson, the causative organism has not as yet been identified beyond the fact that it was a hemolytic streptococcus not typical of the epidemicus variety. The vehicle of infection was raw milk. This was suggested by the nature of the illness and corroborated by finding that 92 per cent of the patients used the same milk supply. The source of infection was evidently one or more of the workers on the dairy farm, who either directly infected the milk through hand capping or milking or transmitted to one of the cows a transient udder infection which had cleared up before the investigation. Hemolytic streptococci were obtained from the throats of two of the milk handlers and from patients.

Effect of Iodine Preparations in Preoperative Treatment of Thyrotoxicosis.—Fulton and Alt have treated forty-two thyrotoxicosis patients either with compound solution of iodine, calcium iodobehenate, or saturated solution of potassium iodide. Fourteen of these received the drugs in doses containing approximately 120 mg. of iodine daily. Eight others received this amount daily following a single large initial dose, and the remainder were given varying amounts of the three drugs. Judging from the drop in the basal metabolic rate and the time in which it occurred, the three substances appear about equally efficacious regardless of the dosage. Whereas the average drop in metabolism in the compound solution of iodine and potassium iodide groups was 35 and 36 points, and in the calcium iodobehenate group 24, the drop occurred on the average in eleven days in the first two groups and eight days in the third, so that the average daily drop was essentially the same.

New Orleans Medical & Surgical Journal

83: 61-124 (Aug.) 1930

Doctor in Court. W. A. Porteous, Jr., New Orleans.—p. 61.
Safeties of Surgery. U. Maes, New Orleans.—p. 71.
Treatment of Acute Peritonitis. R. D. Kirk, Jr., Tupelo, Miss.—p. 76.
Certain Pediatric Aspects of Important Surgical Conditions of Infants. J. K. Bullock, New Orleans.—p. 81.
Protein Therapy in Ophthalmology. A. G. Wilde, Jackson, Miss.—p. 86.
*Observations on Effects of Potassium Sulphocyanate on Elevated Blood Pressure. P. J. Saleeby, New Orleans.—p. 93.
Practical Consideration of Early Diagnosis of Diseases of Thyroid Gland. W. C. Chaney, Memphis, Tenn.—p. 96.
Diagnosis and Treatment of Anxiety States. D. L. Kerlin, Shreveport, La.—p. 99.
Cases of Blood Dyscrasias. E. L. Green, Carpenter, Miss.—p. 102.
Right Sided Diaphragmatic Hernia: Case. T. H. Oliphant, New Orleans. —p. 104.
Fracture of Transverse Process of Fifth Lumbar Vertebra. J. L. Levy, Clarksdale, Miss.—p. 110.

Effects of Potassium Thiocyanate on Elevated Blood Pressure.—In 90 per cent of the cases studied by Saleeby, gratifying relief of symptoms was obtained in an unselected series of individuals with chronic hypertension by the use of potassium thiocyanate in conjunction with outpatient general and dietetic management. Each patient was observed for at least one week, during which time blood pressure and renal function studies were made. Then potassium thiocyanate was prescribed, 0.1 Gm. three times daily, continuously without interruption of the drug or the daily routine of the patient. Two cases were refractory—one a case with marked nitrogen retention, the other with no abnormality except hypertension, but in both of these patients the symptomatic relief was striking. The doubling of the dosage of the drug in these refractory cases had no further effect on the blood pressure. Thiocyanate thus appears to be a drug of some value in the treatment of so-called essential hypertensions and in the mild nephritides with only moderately reduced renal function. The drug is a desirable adjunct in the management and treatment of hypertension.

New York State Journal of Medicine, New York

30: 951-1014 (Aug. 15) 1930

Compensation Doctor. H. P. Posner, New York.—p. 951.
Spinal Fractures. C. N. Dowd, Saratoga Springs.—p. 958.
Clinical Significance of Retinal Arterial Changes and Retinitis in Cardiovascular Renal Disease. J. F. Gipner, Rochester.—p. 961.
Tuberculosis of Peritoneum. R. V. Grace, New York.—p. 969.
*Blood in Cancer Patients. J. G. W. Greeff and M. W. Mettenleiter, New York.—p. 971.
Finger Infection Due to Fusispirochetal Organisms: Case. G. C. Bower and H. B. Lang, Willard.—p. 975.
Early Diagnosis of Cancer and Relation to Surgical Treatment. F. Torek, New York.—p. 976.
Peanut Bronchitis. C. A. Heatly, Rochester.—p. 986.

Blood in Cancer Patients.—A study of the blood in cancer patients with the polarization microscope, Greeff and Mettenleiter assert, offers interesting results for the recognition of a malignant condition. Its practical value from a clinical standpoint is not known and can be established only by a thorough study of the many known and unknown cases. The rational and the physiochemical basis are discussed. The authors have used two instruments. One is the original as used by Bock and the other a new model of P. Jablonsky and M. Mettenleiter.

Oklahoma State M. Assn. Journal, Muskogee

23: 233-264 (July) 1930

Present Day Trend of Surgical Anesthesia. W. P. Fite, Muskogee.—p. 233.
Some Dont's in Eye, Ear, Nose and Throat Work. D. D. McHenry, Oklahoma City.—p. 236.
Psychiatry in Medicine. D. W. Griffin, Norman.—p. 238.
Significance of Certain Physiologic Facts in Surgery of Abdomen. J. Jackson, Kansas City, Mo.—p. 242.
Simplicity in Infant Feeding. H. L. Dwyer, Kansas City, Mo.—p. 245.
Brief Review of Diabetes Mellitus. F. C. Gallaher, Shawnee.—p. 253.
Anabiasis: Present Day Interest. A. W. White, Oklahoma City.—p. 253.

23: 265-296 (Aug.) 1930

Progressive Muscular Atrophy: Five Cases in One Family. W. S. Mason and R. C. Meloy, Claremore.—p. 265.
Rational Development of Medicine. W. P. Neilson, Enid.—p. 266.
Pyelonephritis in Women. F. M. Sanger, Oklahoma City.—p. 269.
The Heart in Surgery. W. J. Trainer, Tulsa.—p. 273.
Rôle of Respiratory Infections in Disturbances of Heart. R. C. Pigford, Tulsa.—p. 274.

Treatment of Celiac Disease from Standpoint of Vitamin Deficiency. C. V. Rice, Muskogee.—p. 279.
Perforated Gastric and Duodenal Ulcer. O. White, Oklahoma City. —p. 284.

Physical Therapeutics, New York

48: 385-432 (Aug.) 1930

Value of Physical Agents in Pneumonia. S. T. Snedecor, Hackensack, N. J.—p. 385.
Accidents During Electrotherapy and Prevention. R. Kovacs, New York. —p. 392.
Crime of Osteosurgeon. E. S. Lewis, Worcester, Mass.—p. 401.
Prevention of Hemorrhage in Tonsil Operations. G. M. Tomlinson, Philadelphia.—p. 408.

Public Health Reports, Washington, D. C.

45: 1827-1882 (Aug. 8) 1930

Present Status of Streptococcus Biologic Products in Prevention and Treatment of Scarlet Fever. M. V. Veldee.—p. 1827.
Acute Response of Guinea-Pigs to Vapors of Some New Commercial Organic Compounds: IV. Ethylene Oxide. C. P. Waite, F. A. Patty and W. P. Yant.—p. 1832.

45: 1883-1925 (Aug. 15) 1930

Immunizing Value of Diphtheria Toxin-Antitoxin Mixture and of Diphtheria Toxoid. W. T. Harrison.—p. 1883.
Antirabic Vaccine Paralysis. G. W. McCoy.—p. 1888.

Southern Medical Journal, Birmingham, Ala.

23: 681-776 (Aug.) 1930

Comparison of Methods Used for Estimating Size of Heart. S. Luton, St. Louis.—p. 681.
*Effectiveness of Ether per Rectum in Whooping Cough and Comparison with Other Methods of Treatment. W. A. McGee, Richmond.—p. 689.
Importance of Routine Muscle Tests. W. O. Martin, Jr., Atlanta, Ga. —p. 693.
Encephalitis and Encephalomyelitis Following Vaccination Against Smallpox: Five Cases. C. S. Holbrook, New Orleans.—p. 696.
Treatment of Perforative Peritonitis. F. H. Hagaman, Jackson, Miss. —p. 703.
Limits of Normal from Clinician's Point of View. O. C. Melson, Little Rock, Ark.—p. 706.
Edema of External Genitalia of Female as Complication of Primary Syphilis. P. F. Stookey, F. C. Helwig and J. K. Howles, Kansas City, Mo.—p. 708.
*Postarsphenamine Dermatitis. H. M. Robinson, Baltimore.—p. 711.
*Purpura Hemorrhagica Following Neoarsphenamine. J. W. Lindsay, E. C. Rice and M. A. Selinger, Washington, D. C.—p. 715.
Ureteral Anastomosis. R. A. Hennessey and A. D. Mason, Memphis, Tenn.—p. 720.
Unusual Salivary Gland Tumors. E. Fischel and L. H. Jorstad, St. Louis.—p. 725.
Ramstedt Operation with Modified Technic for Local Anesthesia. L. W. Grove, Atlanta, Ga.—p. 727.
Conservative Gynecology. G. L. Hunner, Baltimore.—p. 729.
Primary Tuberculosis of Tongue Now Cured: Case. E. Bass, New Orleans.—p. 737.
General Surgeon as Rectal Specialist. A. G. Brenizer, Charlotte, N. C. —p. 740.
Combined Method of Injection and Continuous Pressure in Treatment of Lower Limb Varicosities. J. N. Baker, Montgomery, Ala.—p. 742.
*Clinical Value of Aschheim-Zondek Test for Pregnancy. B. Stone, Nashville, Tenn.—p. 747.
Hypothyroidism: Case Following Curettement. W. C. Pumpelly, Macon, Ga.—p. 749.
Operative and Postoperative Complications of Thyroidectomy. W. H. Priolvau, Charleston, S. C.—p. 752.
Diagnosis and Treatment of Diseases of Thymus. J. B. Johnson, Galveston, Texas.—p. 755.
*Arsphenamine in Treatment of Pellagra: 100 Cases. J. F. Wilson, Jacksonville, Fla.—p. 758.
Venereal Disease Control an Essential Activity of a County Health Department. J. Hancock, Louisville, Ky.—p. 763.

Effectiveness of Ether by Rectum in Whooping Cough and Comparison with Other Methods of Treatment.—McGee's experience has been satisfactory to him, more so than vaccines, ephedrine or cough sedatives. The usual dose given twice daily was 1 drachm (4 cc.) of the mixture (equal parts of ether and olive oil) per nearest year of age, except to infants under 1 year, when 2 drachms (8 cc.) of 25 per cent ether was injected, twice daily. A number 18 to 20 French rubber catheter and a glass funnel were employed in injecting the mixture by gravity into the rectum. If there was a desire to defecate immediately after the ether was administered, pressure was made against the rectum to prevent passage of the medicine. In severe cases 1 or even 2 extra drachms of the ether-olive oil mixture was given. The odor of ether could be detected on the breath in from two to four minutes and for as long as four to eight hours. No detrimental effect on the kidneys, heart, lungs or rectum was observed, though carefully sought. Pyuria was not unfavorably influenced by this method, and in three instances a bronchitis was not exaggerated by the ether. As with vaccines, ether by rectum appeared to prevent complications. As a rule, the ether was administered for from five to twelve days, according to the response of the patient. Cessation of vomiting and whooping was observed in the average case in from four to six days when the ether was well retained, and more or less freedom from severe paroxysms was noted in seven to fourteen days. The great majority of infants and children retained the rectal mixture surprisingly well; in fact, the majority of the small number of patients who were not greatly improved in three weeks were ones who retained the ether poorly or were given the rectal treatment irregularly or for a shorter period of time than was ordered.

Postarsphenamine Dermatitis.—In a group of 83 patients reported on by Robinson there were 107 attacks of dermatitis after injections of various arsphenamine products. Arsphenamine caused 70 of these attacks; in 11, neoarsphenamine was responsible. The dose has no relation to the occurrence of postarsphenamine dermatitis, which occurs as frequently after small as after large doses. Thirteen patients reported the complete absence of prodromal symptoms before the appearance of the eruption. Fifty-eight gave a history of itching, of from one day to eight weeks before the dermatitis. One complained of a sore throat for one week, 3 of nausea, vomiting, malaise and chill, and 8 of acute temporary urticarias and erythemas. In 4 cases a mild rash appeared immediately after the first injection, all in previously untreated females, each receiving 0.3 Gm. of arsphenamine; in 14 cases the rash appeared after 2 injections; in 34 patients, 3 to 6 injections preceded the rash; in 22, 7 to 12 injections; and in 22 patients, 13 to 30 injections. Extravasation of arsphenamine into the tissues did not seem to be a predisposing factor to dermatitis. Postarsphenamine dermatitis occurred in 23 cases of Wassermann positive latent syphilis, 19 of secondary syphilis, 5 of primary sclerosis, 9 of demonstrable tertiary syphilis, 10 of central nervous system syphilis, 6 of congenital syphilis, and in 4 nonsyphilitic individuals. The duration of syphilis at the time of beginning treatment varied from ten days to twenty-four years. In all but 8 cases there was complete recovery. The average duration of the eruption in the moderate cases was one week, whereas, in the severe generalized exfoliative types the average duration was three and one-half weeks, though a few of the patients were hospitalized for as long as eight weeks. One ambulatory patient had a persistent chronically relapsing mild exfoliative dermatitis for five months. With appropriate caution in treatment it is possible to resume some form of arsphenamine therapy in patients who have suffered with a mild to moderate dermatitis (excluding all instances of vesicular and exfoliative eruptions). This is often of importance in the treatment of patients with contagious syphilis or with grave incapacitating late lesions. Data are briefly presented as to intradermal skin tests with arsphenamine as a method of determining arsphenamine sensitization. From the practical standpoint the value of this test is questionable.

Purpura Hemorrhagica Following Neoarsphenamine.—Lindsay et al. suggest that purpura hemorrhagica following the administration of the organic arsenical preparations as a not uncommon occurrence but one which is probably increasing in frequency. It is more likely to occur during subsequent courses of treatment than during the initial course and it is less likely to occur with the use of arsphenamine. Second attacks are of greater severity than primary ones and are almost certain to occur if treatment is reinstituted. Drugs other than the arsenicals may precipitate the condition and combined therapy may be an etiologic factor. The true etiologic factors or modus operandi are unknown. The patient described in this report showed a mild tendency to bleeding following an injection of sulpharsphenamine and developed a typical and moderately severe case of purpura hemorrhagica following an injection of neoarsphenamine. There is no specific treatment for the condition, which seems to run its course to recovery or death.

Clinical Value of Aschheim-Zondek Test for Pregnancy.—Stone has found this test to be a most valuable one

in the early diagnosis of pregnancy when diagnosis by physical examination is impossible. The percentage of failure in testing a hundred specimens of urine from ninety patients is 5. Pregnancy was diagnosed in the second week after the nonappearance of the menses in three cases, in the fourth week in two cases, in one case in the fifth week, in six cases in the sixth to eighth week, in six cases in the tenth to the twelfth week. The remaining cases were a few weeks beyond the third month.

Arsphenamine in Treatment of Pellagra.—In 100 cases reported by Wilson, 24 patients were cured, 61 were improved, 5 remained unimproved, 5 died, and 5 could not be traced. Diet did not seem to play any part in securing these results.

Southwestern Medicine, Phoenix, Ariz.

14: 309-360 (July) 1930

Heart in Tuberculosis: Electrocardiographic Study of 105 Cases. W. R. Leverton, Tucson, Ariz.—p. 311.
Arthritis in Relation to Industry. J. E. Bacon, Miami, Ariz.—p. 316.
Infections of Hand and Fingers. C. N. Ploussard, Phoenxi, Ariz.—p. 319.
Relation of Medical Fraternity to State Industrial Commission. J. Tabeney, Phoenix, Ariz.—p. 322.
Pneumonoconiosis. J. W. Flinn and R. S. Flinn, Prescott, Ariz.—p. 327.
Arteriosclerosis. M. I. Leff, Glendale, Ariz.—p. 330.
Abnormal Eyes in Children of Grade School Age. O. W. Thoeny, Phoenix, Ariz.—p. 332.

Tennessee State M. Assn. Journal, Nashville

23: 273-312 (Aug.) 1930

Economic Status of Medicine Today. M. L. Harris, Chicago.—p. 273.
Chloroma: Case. R. Monger, Knoxville.—p. 282.
Medical Education in Tennessee. O. S. Warr, Memphis.—p. 288.

Texas State Journal of Medicine, Fort Worth

26: 271-332 (Aug.) 1930

Irradiation of Sympathetic Ganglia: Valuable Therapeutic Procedure. K. H. Beall and S. Jagoda, Fort Worth.—p. 279.
Radiation Therapy in Menstrual Headaches. C. L. Martin, Dallas.—p. 280.
Roentgenologic Diagnosis in Tuberculosis of Kidney. B. H. Nichols, Cleveland.—p. 283.
*Treatment of Fractures of Shaft of Femur Emphasizing New Method of Employing Skeletal Traction. C. F. Clayton, Fort Worth.—p. 289.
*Food Sensitization as Determined by Skin Testing. R. F. E. Stier and G. Hollister, Spokane, Wash.—p. 294.
Toxin-Antitoxin. J. R. Mahone, Edinburg.—p. 298.
Protecting Children Against Diphtheria. E. O. Chimene, Austin.—p. 300.
Preoperative and Postoperative Use of Duodenal Tube. W. L. Brown and C. P. Brown, El Paso.—p. 303.
Cor Bovinum. C. B. Sanders, Galveston.—p. 306.

Treatment of Fractures of Femur by New Method of Skeletal Traction.—Clayton has devised a modification of the "ice tongs" usually used for traction in these cases. The apparatus consists of a simplified caliper, adjustable in size. It is applicable to all cases of fracture of the shaft of the femur in adults and older children, in which bloodless reduction can be accomplished.

Food Sensitization as Determined by Skin Testing.—Stier and Hollister are convinced that food is responsible for many of the common complaints of patients. Many new conditions are continually being demonstrated as due to food sensitization and the field for further investigation is still large. Foods were solely responsible for the production of symptoms in about 70 per cent of the cases studied. Based on sound reasoning, it is a logical procedure to demonstrate food sensitivity by means of skin tests with a potent glycerin-salt extract of the food.

United States Vet. Bur. M. Bull., Washington, D. C.

6: 635-732 (Aug.) 1930

*Malta Fever: Four Cases. I. D. Loewy.—p. 635.
Future Incidence of Nervous and Mental Disease Among Ex-Service Men. P. B. Matz.—p. 642.
Results of Operative Treatment for Habitual Dislocation at Shoulder. P. F. Brown and C. C. Burton.—p. 654.
*Diathermy as Adjuvant to Electric Cauterization in Treatment of Laryngeal Tuberculosis. J. W. Kellam.—p. 659.
Neuropathologic Considerations in Epidemic Encephalitis and Huntington's Chorea. C. R. Miller.—p. 661.
*Diagnosis and Treatment of Hysterical Paralysis: Case Cured by Etherization and Suggestion. P. P. Barker.—p. 663.
Essential Hypertension. C. H. Ketterer.—p. 671.
Arterial Hypertension. G. O. Haynes.—p. 675.
Myomalacia Cordis: Case. W. M. Pretts.—p. 679.
Clinical Symptomatology of Diseases of Gallbladder and Biliary Ducts. P. E. Johnson.—p. 684.
*Blood Transfusion in Treatment of Malarial Hemoglobinuria. T. M. Barnett.—p. 688.
Time as Factor in Treatment of Pulmonary Tuberculosis. C. L. Moore.—p. 692.
Care and Treatment After Extraction of Teeth. M. A. Gerde.—p. 695.
Panniculitis: Cases. H. Mella.—p. 697.
Undulant or Malta Fever. E. W. Brace.—p. 699.
Brain Abscess: Case. J. B. Warden.—p. 701.
Sarcoma of Stomach. H. D. Coffee.—p. 703.
Encephalitis Lethargica. G. V. P. Davis.—p. 705.
Id. C. C. Brace.—p. 707.
Use of Hyoscine in Parkinsonian Residuals. B. A. Thompson.—p. 709.

Malta Fever.—Loewy feels that malta fever is more prevalent in the United States than the occasional reports show. It is usually confused with typhoid, but its longer course, history of contact with goats, hemoculture and agglutination tests will show its true nature. It does not respond to any known remedies, the treatment being symptomatic only. The mortality from it is low, and the great majority of those affected ultimately recover. In addition to *Brucella melitensis*, *Brucella abortus* is implicated as a cause of undulant fever. It does not appear to affect pulmonary tuberculosis, either active or arrested. Drinking goat's milk may cause the disease, also contact with goats during the kidding season, or with goats' urine.

Treatment of Laryngeal Tuberculosis.—Kellam asserts that in the light of present-day knowledge the pessimism which doomed every patient having ulcerative laryngeal tuberculosis to death without effort to cure or palliate the unbearable distress is unjustified. Electrical cauterization has large superseded curets, biting forceps, heliotherapy and acid applications in the management of tuberculous ulcers, infiltrates and exuberant granulations. Sedative diathermy is an adjuvant to electrical cauterization, in that it stimulates sluggish tuberculous lesions, hastens healing, and aids in the relief of pain.

Diagnosis and Treatment of Hysterical Paralysis.—In a series of 1,011 neuropsychiatric cases the incidence of hysteria was 7.22 per cent; the disease was unaccompanied by associated conditions in only 6.85 per cent of the cases; mental deficiency and infection were the most frequent associated factors. Hysterical paralysis was present in three cases. A case is presented by Barker of hysterical paralysis of the left arm of ten years' duration and of the entire left upper extremity of three months' duration, cured by etherization and suggestion. The return of motor and sensory functions was simultaneous and immediate. Etherization produces a favorable opening for suggestion by removing the conscious inhibition of the patient. It is of value in diagnosis in difficult cases. Suggestion, persuasion, electrical therapy, reeducation and occupational therapy are best suited to the majority of patients.

Transfusion in Treatment of Malarial Hemoglobinuria.—From personal experience and a review of the recent literature, both foreign and American, the opinion has been formed by Barnett that malarial hemoglobinuria or blackwater fever, and the so-called yellow disease, found in certain low, marshy districts in some of the Southern states, are at all times caused by the malaria plasmodium of the estivo-autumnal type. Furthermore, he believes that there is a toxemia formed during each hemolysis or malarial cycle, and that although the hemoglobinuria has ceased these patients often die of toxemia. If, on the first blood examination after the administration of quinine, the red blood cells and hemoglobin are found to be very low, or the patient very toxic, blood transfusion should be performed at once and repeated every twelve to eighteen hours until the blood shows an increase in red blood cells and hemoglobin to such an extent that quinine is permissible. It has been Barnett's experience that the general condition of the patient improves immediately following the transfusion, although it was from twelve to eighteen hours before there was much improvement in the blood picture. Quinine should always be administered intravenously in cases of emergency, as it goes directly into the blood stream and acts more quickly. Mortality among patients suffering with malaria hemoglobinurla would be markedly decreased by the use of blood transfusions in preparing patients for quinine therapy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

18:1-184 (July) 1930

Some Bygone Operations in Surgery. D'Arcy Power.—p. 1.
*Endothelioma of Cauda Equina: Report of Case with Removal of Tumor and Recovery. C. P. G. Wakeley, C. Worster-Drought, I. M. Allen and W. E. C. Dickson.—p. 6.
*Hernia in Africans. W. K. Connell.—p. 16.
*Cysts of Long Bones of Hand and Foot. H. Platt.—p. 20.
*Gas Gangrene in Civil Surgery. N. L. Eckhoff.—p. 38.
*Approach to Hip Joint: Critical Review and a Suggested New Route. R. P. Osborne.—p. 49.
Is It True That Valves in a Vein Necessarily Become Incompetent When the Vein Dilates? R. E. Kelly.—p. 53.
Splinting of Cases of Tuberculosis of Hip. M. Forrester-Brown.—p. 54.
*Bacteriologic Study of Fifty Cases of Cholecystectomy with Special Reference to Anaerobic Infections. G. Gordon-Taylor and L. E. H. Whitby.—p. 78.
Carcinoma of Duodenum. J. E. Schofield.—p. 84.
*Tubular Hermaphrodite with Teratoma of Internal Genitalia. E. D'Arcy McCrea.—p. 91.
*Rodent Ulcer as Sequel to Prolonged Roentgen Radiation. H. Edwards, E. Creed and H. A. Colwell.—p. 96.
Volvulus of Stomach. J. Buchanan.—p. 99.
Some Aspects of Pathology of Hypertrophic Charcot's Joints. E. J. S. King.—p. 113.
*Study of Tumors and Inflammations of the Gasserian Ganglion. F. A. R. Stammers.—p. 125.
Intestinal Obstruction Complicating Posterior Gastrojejunostomy: Case of Internal Strangulation of Small Intestine by Afferent Limb. G. Armitage.—p. 154.
Case of Unilateral Polycystic Kidney in Child, Age One Year and Eight Months. C. P. G. Wakeley.—p. 162.
Case of Nonrotation of Intestine with Congenital Absence of Radius. J. W. G. Grant.—p. 166.
Rare Case of Intestinal Obstruction. E. Kendall.—p. 168.
Case of Traumatic Diaphragmatic Hernia. C. Pelson.—p. 170.
Case of Spina Bifida Occulta. S. J. H. Griffiths.—p. 172.

Endothelioma of Cauda Equina.—A case of endothelioma of the cauda equina is described in detail by Wakeley et al. They state emphatically that the appearance of bilateral signs of any kind, whether sensory, motor, or variations in the reflexes, in the course of a case which appears to be one of sciatica, should at once suggest that a lesion is in the wall or lumen of the spinal canal, and further investigations should be made to decide the nature of the lesion. Attention is drawn to the fact that the cerebrospinal fluid changes considered characteristic of spinal block may be simulated in cases in which there are thrombotic lesions of the brain or spinal cord possibly in close contact with the cerebrospinal fluid system. The use of iodized oil and skiagraphy is of definite value in the investigation and localization of lesions of the cauda equina, and is probably more useful and less subject to errors of interpretation than in cases of spinal block involving the spinal cord.

Hernia in Africans.—Connell feels that the tendency to blame modern civilization for most of mankind's ills has gone much too far. We are assured by various authorities that cancer is mainly the result of an artificial diet and that it could not occur among plain people eating plain food in a plain way. This view is not borne out by the facts. There is no dearth of malignant disease among even the most primitive of East African tribes. Between Sept. 5, 1927, and Nov. 5, 1929, Connell operated in 208 cases of hernia at the Sewa Hadji Hospital, Dar-es-Salaam. The total mortality (including twelve strangulated cases) was 2.4 per cent. Perhaps the most striking fact brought out is the apparent immunity of the East African female to rupture. Thus, of the total of 208 cases, only two occurred in women—one being an umbilical and the other a femoral hernia.

Cysts of Long Bones of Hand and Foot.—The clinical and roentgenographic pictures of a series of twenty cysts of the long bones of the hand and foot occurring in seventeen patients are analyzed by Platt and compared with those of similar cysts recorded in the literature. The bones involved in order of frequency are the phalanges (of the hands), metacarpals, and more rarely, the metatarsals. The cysts originate in the growing ends (metaphysis). The favorite digit is the little finger. The majority of cysts develop insidiously, remain latent for a time, and are discovered after the occurrence of local injury. Spontaneous fracture is a fairly common phenomenon. In thirteen cysts in which a microscopic examination was made of material removed at operation, two varieties of lesion were distinguished: (*a*) chondroma (myxochondroma); (*b*) osteitis fibrosa. The most effective method of eradicating the lesion is to curet the contents and cauterize the interior of the cyst with pure phenol (carbolic acid). This procedure is best combined with the insertion of one or more autogenous bone grafts, which hasten the obliteration of the cystic area.

Gas Gangrene in Civil Surgery.—Twenty-three cases of gas gangrene are described by Eckhoff, twelve following accidents and eleven following ordinary operations. The clinical signs and symptoms are discussed, especial attention being drawn to severe local pain and marked rise of pulse and temperature, indicating the importance of early diagnosis. The bacteriology and pathology are briefly considered. The treatment is indicated, with particular reference to the value of early and plentiful administration of serum, especially where radical removal is impossible.

Approach to Hip Joint.—In view of the fact that Langenbeck's method is less mutilating than Kocher's, but the exposure somewhat limited, Osborne has made a combination of the two operations. The method adopted depends on the observation that the tendon of the pyriformis runs along the posterosuperior margin of the neck of the femur, and the gemellic mass runs obliquely across the neck. With the diseased limb adducted across the sound limb, he incises from a point 1¼ inches below the posterior superior iliac spine to the posterosuperior angle of the great trochanter and then down the posterior edge of the trochanter for 2 inches. The subsequent stages of the operation are: division of the gluteus maximus in the line of its fibers and retraction of the edges; internal rotation of the limb and division of the tendons of the pyriformis and the gemellic mass close to their insertion. The capsule of the joint is now exposed and may be incised. Further exposure can be gained, if required, by retracting the quadratus femoris downward and the gluteus medius upward.

Cholecystectomy with Especial Reference to Anaerobic Infections.—In sixteen of the fifty cases analyzed by Gordon-Taylor and Whitby the fluid contents of the gallbladder were infected. The organisms present were: *B. coli*, six cases; streptococci, four cases; *B. welchii*, three cases, and other bacteria in three cases. The wall of the gallbladder was infected in forty-one cases by the same organism. Intestinal bacteria are the most frequent organisms in gallbladder infections. *B. welchii* is usually, but not invariably, associated with the acute form of cholecystitis. *B. welchii* is more commonly found in gallbladder infections and in gallstones than has hitherto been believed: in nearly 9 per cent of a series of gallbladders removed by operation was this organism found. *B. welchii* was found in the center of 13 per cent of gallstones obtained from the postmortem room.

Tubular Hermaphrodite with Teratoma of Internal Genitalia.—McCrea reports an example of a tubular hemaphrodite in whom an atypical teratoma of the internal genitalia had developed.

Rodent Ulcer as Sequel to Prolonged Roentgen Irradiation.—Edwards et al. report the case of a woman who had a radical amputation of the left breast for carcinoma in October, 1913. Healing was uneventful, and a healthy scar resulted. In July, 1914, she commenced a series of roentgen treatments as a prophylactic against recurrence. The patient was much worried about the possibility of recurrence and pressed for continued and repeated treatment. In all, ninety-four treatments were given during a period of twelve years. In August, 1927, the patient urgently requested that roentgen treatment might be continued. The impossibility of this was pointed out when inquiries had been set on foot regarding past roentgen treatments. Examination of the patient at this time showed a healthy scar, but the skin in the neighborhood was atrophic and was covered with telangiectases. The skin of the right breast was also affected in a similar way but not to so marked a degree.

From time to time the patient came up for inspection, and in December, 1928, she had a small sore at the upper end of the operation scar. It was found to be covered with a dry scab, which the patient was advised to remove by fomentations. She was not again seen until February, 1929, when the ulcerated area was found to have increased in size on microscopic examination. It was perfectly clear that the ulcer was not a recurrence of the primary growth but was a sequel to the large amount of radiation which had been given.

Study of Tumors and Inflammations of the Gasserian Ganglion.—Seven cases of tumor and two of inflammatory lesions of the gasserian ganglion are presented by Stammers. The development and anatomy of the ganglion are described. The literature on tumors and inflammations of the ganglion is reviewed. The complete history, treatment, and progress of each of the nine cases are given. In considering the pathology of the tumors it is opined that four out of the seven cases are true intrinsic tumors of the ganglion. It is also suggested that some of the tumors described in the literature as "endothelioma" of the ganglion are true intrinsic tumors, for it is pointed out that just as meningiomas, which are still often described as "endothelioma arising from the lining cells of the dura," do not infiltrate the brain, so there is no reason to assume that they invade the ganglion, which is surrounded by arachnoid and dura in the same way as the brain is surrounded. The present-day operation, with its variations, is described. The many other conditions producing pain in the fifth nerve area are considered, and the differential diagnosis is discussed. A constant symptom complex is developed from which it is considered possible to diagnose these lesions. The all important point is the sequence of events.

Lancet, London

2: 281-332 (Aug. 9) 1930

*Syphilis of Heart and Great Vessels. H. C. F. Coombs.—p. 281.
Distribution of Radiation from Clinical Radium Tubes. S. Russ and D. F. Clephan.—p. 286.
*Intradermal Tuberculin Test. J. Maxwell.—p. 289.
Controlled Recession Operation for Treatment of Convergent Strabismus. P. E. Gorst.—p. 291.
*Causes of Death Among Diabetics. D. M. Lyon and R. M. M. Lyon. —p. 293.
Interstitial Pregnancy in Tubal Stump After Salpingo-Oophorectomy. L. A. Richardson.—p. 296.
Nonspinous Psoas Abscess. S. Behrman.—p. 297.
Simultaneous Diphtheritic and Syphilitic Infection of Throat: Case. H. E. de C. Woodcock.—p. 298.

Syphilis of Heart and Great Vessels.—The share of organic disease of the heart and great vessels to be ascribed to syphilis is assessed by Coombs at 5 to 15 per cent, and reasons are given for believing that this is a direct relationship; the more syphilis, the more aortic disease. For this reason, males more often show signs of cardiac syphilis than do females. There is usually a latent period of from twenty to twenty-five years between the primary infection and the onset of cardiac symptoms. In this, cardiac syphilis resembles neurosyphilis. Then Coombs constructs from a series of 103 case notes a composite picture of cardio-aortic syphilis as the clinical observer sees it. In a majority of the 103 cases, the symptoms that brought the patients to seek advice were cardiac. In a minority, other lesions—cerebral thrombosis, tabes, and so forth—stamped them as syphilitic, and this led to an investigation of the cardiovascular system, with the result that physical signs in these few cases preceded symptoms. For the most part, however, symptoms came first and signs lagged behind. The rule is that the patient feels something amiss, the principal symptoms of onset being dyspnea on exertion and precordial pain; he goes to his medical man and is found to present signs of heart disease. The three great cardiac symptoms—dyspnea, pain and edema—appear in that order, both in sequence and in frequency. Dyspnea, noted in 85 instances, is an early symptom; so is pain, complained of by 58 patients; but edema, together with other signs of ventricular failure, is only seen later. It was recorded in 43 of the 103 cases. Paroxysmal dyspnea occurs much more frequently in syphilitic than in rheumatic lesions of the aortic valves. Signs of some form of aortic valvular disease were noted in 63 cases. In 54 this is recorded as regurgitation, in 2 as obstruction, in 7 as regurgitation with obstruction. A mitral systolic murmur was noted 24 times; in 14 it accompanied signs of a lesion of the aortic valves and in 10 it occurred alone. Interference with the muscular functions of the heart is a prominent feature of cardiac syphilis. Interference with conduction of the stimulus from auricles to ventricles was observed in 6 instances, three of these being examples of block of the main bundle varying in degree from time to time. There were signs of increase in the size of the left ventricle in 80 of the cases. Evidences of other syphilitic lesions were noted 26 times.

Intradermal Tuberculin Test.—A method of performing the test is presented by Maxwell together with a discussion of the results. He says that, in performing the test, the following essentials must be kept in mind: In the first place, the quantity of material injected must be sufficient to give positive reactions where such reactions should occur, yet it should not be so great as ever to cause severe reactions. The diluted tuberculin is apt to deteriorate, and for this reason it is preferable that the dilutions should be freshly prepared before use. In the present series the diluted tuberculin was never kept for more than forty-eight hours, thus ensuring the elimination of any possible factor of deterioration in the standardization of the reactions. Lastly, the site selected for the injection should be carefully considered, not only from the point of view of ease of injection but also in order that a strongly positive reaction shall not interfere with the functions of the limb. The details of technic are described fully. The test by itself, however, does not prove a diagnosis, and failure to realize this fact is responsible for many clinical errors. The test, when employed with proper safeguards, may yield information of value if performed in suitable cases; its indiscriminate use as a mainstay in diagnosis is to be condemned.

Causes of Death Among Patients with Diabetes.—An analysis has been made by the Lyons of the cause of death in 150 cases of diabetes mellitus. Coma preceded death in 59 of the cases, being precipitated by sepsis (7), abdominal upset (9), respiratory infections (13), or by faulty treatment (21). Deaths without coma were mainly due to cardiovascular lesions (43), to sepsis (17), to tuberculosis (11), and to malignant disease (13) not necessarily involving the pancreas. The investigation suggests that the cases of diabetes may be grouped into two classes: (*a*) the "toxic" type in younger individuals with a tendency to develop coma; (*b*) a "degenerative" type, characterized by greater age, arteriosclerosis, and a tendency to obesity.

Quarterly Journal of Medicine, London

23: 393-508 (July) 1930

*Acidosis and Debility: A Contribution to Study of the State of "Soil" Disposing to Disease. A. A. Osman and H. G. Close.—p. 393.
*Carcinoma of Lung Causing Intestinal Obstruction by Secondary Deposits. W. G. Barnard and T. R. Elliott.—p. 407.
Studies on Sprue with Special Reference to Treatment. P. Manson-Bahr and H. Willoughby.—p. 411.
Measurement of Skin Temperatures. F. C. Smith and S. L. Simpson. —p. 443.
Action of Histamine on Chloride Content of Stomach. R. J. Duthie. —p. 447.
*Viscosity of Blood in High Blood Pressure. I. Harris and G. McLoughlin. —p. 451.
Blood Cholesterol Studies in Biliary and Hepatic Disease. J. A. Gardner and H. Gainsborough.—p. 465.
Action of Adenosine on Human Heart. R. M. Honey, W. T. Ritchie and W. A. R. Thomson.—p. 485.
Achalasia of Cardia. A. F. Hurst and G. W. Rake.—p. 491.

Acidosis and Debility.—Osman and Close conclude that there are significant biochemical differences, especially in respect of the bicarbonate content of the plasma, and of the water content of the body, between normal men, women and children. In debilitated persons, both adults and children, some degree of acidosis is the rule, and this is often accompanied by an increased water content of the body. This condition of "acidosis" is widely present among persons of all ages of the so-called hospital classes of this country. The type of acidosis described is not due to or associated with excess of ketone bodies in the blood. Speaking generally, the water content of

the body tends to vary inversely with the plasma bicarbonate. Many published figures relating to the acid-base balance of the blood, suggesting evidence of an "acidosis" in numerous diseases, are said to be of doubtful value when the estimations have been carried out on "hospital class" patients, as hitherto, so far as they are aware, the normal for this group has not been established.

Carcinoma of Lung Causing Intestinal Obstruction by Metastasis.—Two cases are described by Barnard and Elliott in which the obvious clinical picture was that of intestinal tumor causing obstruction. These tumors were, definitely in one case and probably in the other, secondary deposits from primary carcinoma of the bronchus.

Viscosity of Blood in High Blood Pressure.—Harris and McLoughlin found on examining twenty-one patients that in the great majority of cases of high blood pressure the viscosity of the blood is higher than normal. The viscosity of the blood is a causal or contributory factor in high blood pressure in many instances. The intake of large quantities of fluid lowers the viscosity of the blood and the blood pressure, the viscosity varying inversely with the urinary output. The increase of viscosity in these cases of high blood pressure is not due to increase in the carbon dioxide content of the blood, and there is no evidence that it is due to increase in the size or number of the blood cells.

Annales de l'Institut Pasteur, Paris

44: 503-628 (May) 1930

Chemotherapy of Malaria: Experiments on Canaries. E. Fourneau, M. and Mme. Trefouel, G. Stefanopoulo, G. Benoit, Y. de Lestrange and K. I. Melville.—p. 503.
Antigenic Function of Lipoids. E. Césari.—p. 534.
Distribution of Nickel and Cobalt in Plants. G. Bertrand and M. Mokragnatz.—p. 543.
*Serologic and Bacteriologic Diagnosis of Rhinoscleroma. B. J. Elbert and W. M. Guerkess.—p. 548.
*Rôle of Nervous System in Acute and Chronic Inflammation. A. D. Speransky.—p. 571.
Effects of Injections of Homologous Serum on Height and Growth of Animals. C. Picardo.—p. 584.
Passive Immunity and Serotherapy in Larvae of Galleria Mellonella. V. Zernoff.—p. 604.
Antirabic Vaccinations at the Pasteur Institute in 1929. J. Viala.—p. 619.

Serologic and Bacteriologic Diagnosis of Rhinoscleroma.—Agglutination and complement fixation reactions for the serodiagnosis of rhinoscleroma are described in detail by Elbert and Guerkess. The results of the two reactions are found almost always to coincide. A complete description of the technic of bacteriologic diagnosis is given.

Rôle of Nervous System in Acute and Chronic Inflammation.—Observations made on the progress of diphtheritic inflammation of the denervated ear of a rabbit showed that the accompanying suppuration is produced in almost the same manner in the sound as in the denervated ear. This did not seem conclusive proof of the independence of the local inflammation of nervous influences in a normal rabbit since different stages of the local inflammation might have been autonomous or linked only with Langley's axon reflexes. In acute peritonitis in normal rabbits and in those whose vagus nerves had been sectioned, experiments showed that the suppression of a direct nervous connection of the organs of the abdominal cavity with the medulla oblongata not only favored the course and outcome of the disorder but also modified the development of the abdominal inflammatory symptoms. Under these conditions, general peritonitis was often prevented. Other factors may have exerted some influence. After further experimentation, Speransky concluded that the medulla oblongata participates directly in the morbid process of the nervous cell through the agency of the vagus nerve. Later, normal rabbits after a laparotomy were given an injection of staphylococcus culture, some under the serous membrane of the stomach, some under the serosa of the large intestine. The former died after from eight to sixteen hours even with a 1:500 injection of a twenty-four hour staphylococcus culture. Necropsy showed severe inflammatory alterations extending over the entire wall, and general peritonitis with serosanguineous exudations. For from two to four days the other group of rabbits was able to resist death, which was due to staphylococcic septicemia rather than to peritonitis. The reaction was always limited to the inoculated region of the intestine, while the adjacent tissue appeared normal. A clear difference between the evolution of the infectious process and the intensity of the local reaction was evident. Rabbits inoculated in the wall of the stomach succumbed before those that received an intravenous injection. The degree of danger in the two cases may be explained by their greater or lesser proximity to the solar plexus. An analysis in detail of the inflammatory process gives the impression that it is autonomous and that it does not depend on the nervous system. On the contrary, shortly after the beginning of the inflammation the nervous system becomes involved and eventually the character and intensity of the disorder as well as the fate of the animal depend on this condition. Numerous tests were also made on rabbits with chronic inflammation. The influence of the nervous system on the local tuberculous process was considerable. When suppressed or suspended, it modified the development of the lesions: inflammatory alterations vanished and the bacteria disappeared.

Annales de Médecine, Paris

27: 430-540 (May) 1930

Benign "Idiopathic" Spontaneous Pneumothorax. E. Olbrechts.—p. 430.
*Diabetic Coma: Prognosis and Treatment. M. Labbé and A. Souheil.—p. 484.
Visceral Crisis of Tabes with Paroxysmal Albuminuria. E. Cassaët and A. Fontan.—p. 512.
Anaphylactic Asthma. C. Richet.—p. 519.
"Elimination Treatment" of Asthma. C. Richet.—p. 524.

Diabetic Coma: Prognosis and Treatment.—Death in diabetic coma is sometimes due to disorders that follow the coma or are associated with it rather than to severe acidosis or insufficient insulin treatment. Such disorders may be acute infections and suppurations, pulmonary tuberculosis or exophthalmic goiter; they may be conditions of cardiac collapse or, again, hepatic insufficiency, and so on. Labbé and Souheil observed 69 cases. There were 20 deaths, 8 of which were due to failure of the patients to follow instructions or to remain under proper conditions. The deaths of the 12 patients remaining under their surveillance were due not to diabetic coma but to the causes stated. The patients in coma received an injection of 20 units of insulin every half hour. The first injections were intravenous; the following ones were given in the subcutaneous cellular tissue. When the patients began to come out of the coma, the injections were given hourly. When the Gerhardt reaction disappeared from the urine, the injections were given every two hours. The injections were given at increasingly long intervals if the reaction did not again appear. Coma usually disappeared in a few hours, dyspnea in from six to twelve, and the Gerhardt reaction in from twelve to twenty-four. The average insulin dose in the first twenty-four hours was usually from 200 to 400 units.

Archives des Maladies du Cœur, etc., Paris

23: 369-432 (June) 1930

Anatomic Constitution and Physiologic Properties of Sino-Atrial Node and Electrocardiographic Anomalies. A. S. Roversi.—p. 369.
*Electrocardiogram in Artificial Pneumothorax. P. Perrin and P. Drouet.—p. 387.
Temporary Paralysis and Attacks of Angina Pectoris. L. Gravier.—p. 394.
Errors in Methods and Conclusions Relative to Determination of Arterial Elasticity. H. Harlé.—p. 397.

Electrocardiogram in Artificial Pneumothorax.—Thirty cases of pneumothorax (16 right, 13 left, 1 bilateral) form the basis of a study on the possible connection between the variations in the position of the heart and the modifications in the electrocardiogram. Perrin and Drouet conclude that a pneumothorax clearly modifying the electrocardiogram and involving heart displacement is only a question of physiologic modification that cannot in any case be mistaken for signs of myocardial degeneration. Consequently, when the electrocardiographic signs of myocardial degeneration coincide with a pleural infiltration, they should be attributed, until more is known, not to the existence of the infiltration but to a cardiac alteration.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

22: 345-388 (May 16) 1930

*Postoperative Ileus Treated by Means of Intravenous Injections of Hypertonic Solution of Sodium Chloride. F. Clément.—p. 347.
Unilateral Gynecomastia: Case. A. Dragos.—p. 352.
Vicious Union of Fracture: Osteotomy, Pseudarthrosis and Cure by Means of Osteoperiosteal Grafts. Bellanger.—p. 357.
*Partial Colectomy for Cancer. Moreau.—p. 362.
Propulsion of Uterus into Vesical Wall by Double Cyst of Right Ovary: Case. Ballenger.—p. 370.
Fibromyoma of Uterine Cavity with Subperitoneal Fibromatosis and Sclerocystic Ovaritis: Hysterectomy. P. Muller.—p. 373.
Osteophytes in Nonfistulous Pott's Disease. C. Roederer.—p. 376.
Chronic Osteomyelitis: Case. J. Lanos.—p. 379.
Cancers of Ascending Colon and Rectum: Surgical Treatment. Raymond de Butler d'Ormond.—p. 384.

Ileus Treated by Intravenous Hypertonic Solution of Sodium Chloride.—Paralytic ileus with meteorism developed three hours after a uterine tumor operation. Clément obtained successful results in checking and overcoming this condition by means of intravenous injections of 5 cc. of 20 per cent sodium chloride solution administered about every two hours. In all, nine injections were given.

Partial Colectomy for Cancer.—In five of seven cases of cancer of the transverse colon and of the left colon an occlusion was present; in these cases a cecal anus operation preceded exeresis by one month. The exeresis technic used by Moreau was the exterioration method with subsequent resection. Successful immediate result were observed in all of the seven cases. One patient, however, died a year later as the result of a secondary cancer of the liver.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 815-881 (May 26) 1930

*Lipoid Nephrosis: Importance of Salt-Free Diet. A. Lemierre, M. Laudat, M. Rudolf and R. Cattan.—p. 816.
*Myeloid Leukemias: Prognostic Significance of Certain Cells in the Blood During Roentgen Treatment. A. Béclère.—p. 828.
Diaphragmatic Eventration and Pneumothorax: Case. M. Labbé, R. Boulin, Azerad and Soulié.—p. 830.
Evolution of Nephrosis in Two Children and "Dehydration Fever." E. Lesné, R. A. Marquézy and Robert-Wallich.—p. 836.
A Syndrome of Secondary Nephrosis and One of Chronic Nephritis. E. Lesné, R. A. Marquézy and Robert-Wallich.—p. 839.
Lanceolate and Cuneiform Images of Fissural Regions of Lung in Lordotic Position. H. D'Hour.—p. 841.
*Pancreatic Insufficiency in Persons with Cirrhosis Considered in Light of Hirschhorn Test. M. Herbain and G. Albot.—p. 847.
*Angina Pectoris in Mitral Stenosis: Mitral Stenosis with Reflex Symptomatology. E. Doumer.—p. 852.
*Sudden Death in Asthma: Two Cases. C. Laubry.—p. 857.
Aseptic Epidemic Encephalitis Complicated by Acute Bilateral Blindness and by Weber's Syndrome. R. Tchobanoglou.—p. 859.
Generalized Scarlatinal Exanthem with Area of Normal Skin in Region of Election of Eruption: Case. T. Dumitresco.—p. 862.
Glycemia and Nonprotein Nitrogen Level in Severe Forms of Diphtheria. Y. Procházka.—p. 865.
Septicemia with Bacillus Pyocyaneus. F. Coste and V. Stefanesco.—p. 867.
*Clinically Controlled Cure of Inoperable Ulcerous Intestinal Tuberculosis. R. Burnand, C. L. Perret and M. Gilbert.—p. 875.

Lipoid Nephrosis: Importance of Salt-Free Diet.—Lemierre et al. report their observations on a case of lipoid nephrosis of unknown cause. The albumin content of the urine varied from 8 to 30 Gm. per liter. The patient showed a gradual development of marked peripheral edema and effusions into the pleural and peritoneal cavities. The fluid obtained on puncture of the pleural and peritoneal cavities was an almost purely saline solution containing few organic elements. By means of paracentesis of the pleural cavity and a salt-free diet, the patient's condition was notably improved. Except for drastic purgatives, the usual therapeutic agents had no effect.

Significance of Certain Cells in Myeloid Leukemia During Roentgen Treatment.—Béclère, in agreement with Emile-Weil and Isch-Wall, denies the existence of a mixed leukemia—one both myeloid and lymphoid. The appearance of tumors of the lymph nodes at the terminal period of myeloid leukemia indicates its transformation into acute leukemia and it carries with it a fatal prognosis. Another sign of this fatal prognosis is the appearance in the blood of nongranular mononuclear cells similar in aspect to those of acute leukemia or of chloroma. Béclère points out that he with H. Béclère noted this sign and its fatal significance twenty years ago. When these cells appear in the blood in the course of treatment with roentgen rays, it is clear that there is nothing more to be hoped for from this treatment and that roentgen treatment should be abandoned as actually harmful.

Pancreatic Insufficiency in Persons with Cirrhosis Considered in Light of Hirschhorn Test.—Herbain and Albot report observations of thirteen cases in which they used a recently described test of Hirschhorn et al. to see if it would throw light on pancreatic insufficiency in persons with liver disturbances, especially those with cirrhosis. The test (*Ztschr. f. klin. Med.* **108:**585 [number 4] 1928) consists of two ingestions, with a one and one-half hour interval, of 50 Gm. of dextrose in 250 cc. of tea and six successive determinations for glycemia. The first is performed with the patient fasting, immediately before the first ingestion of dextrose; the second, immediately before the second ingestion; the others, two, two and one-half, three and three and one-half hours, respectively, after the beginning of the test. In the course of diabetes and other pancreatic lesions verified anatomically, the test gives results clearly indicating the insulin deficiency of the pancreas. The authors applied it to thirteen persons. Four were either normal or without disorders of the pancreas or liver and gave a normal glycemia curve. In the remaining patients (fasting, and after the first and second ingestions) they observed three different states of glycemia. The results varied. Pending further research, one may say that the results of the Hirschhorn test in cirrhosis are most often normal. It does not provide sufficient proof either of the importance or of the frequency of pancreatic alterations associated with sclerous alterations of the liver.

Angina Pectoris in Mitral Stenosis: Mitral Stenosis with Reflex Symptomatology.—The case of a woman, aged 29, with attacks of angina pectoris repeated several times daily for several months is reported by Doumer. The disease had all the characteristics of acute attacks of aortitis or of left ventricular syncope coexisting with perfect regularity in the cardiac rhythm. A diagnosis of mitral stenosis was made. Total and lasting disappearance of the anginal attacks was made possible by submitting the patient to a neurosedative treatment. The disappearance of the attacks was followed by certain unusual manifestations (attacks of coughing, vomiting and syncope) of reflex origin. In two other cases of moderately severe mitral stenosis, without gross distention of the atrium, or arrhythmia or stasis, bradycardia and effort dyspnea were noted. Under belladonna treatment, both the bradycardia and the dyspnea improved.

Sudden Death in Asthma.—The roentgen, electrocardiographic and clinical examinations revealed a normal heart in a patient, aged about 50, who had had attacks of asthma since childhood. Several similar examinations made over a period of two years gave the same results and yet the patient suddenly succumbed during an attack. A second patient, whose condition was almost identical, succumbed similarly, presenting generalized cyanosis. Laubry gives as a possible explanation of the death asphyxia, which might be due in some cases to bronchial obstruction but more likely in such sudden and fatal attacks, to respiratory pause with immediate and direct action on the heart.

Clinically Controlled Cure of Inoperable Intestinal Tuberculosis.—A young woman with pulmonary tuberculosis had developed ulcerative tuberculosis of the intestine six years previously. A laparotomy at that time had revealed severe and extensive lesions of the intestine. Although the laparotomy had been only exploratory, the patient began to improve under guaiacol carbonate and heliotherapy and was pronounced clinically cured. The cure was attested six years later by perfect digestive functioning, good general condition and roentgenoscopic examination. Burnand et al. tend to believe that the disease cured itself, aided by the foregoing therapeutic measures. Also the initial pneumothorax might have aided in the favorable evolution of the intestinal lesions by suppressing an important source of bacillary resorption.

(54): 941-976 (June 9) 1930
*Spleen-Lymph Node Syndrome in Myeloid Leukemia. E. Doumer.—p. 943.
Albumins of Serum in Secondary Syphilis. A. Sézary and P. Martinet.—p. 945.
Prolonged Cephalic Tetanus: Recovery. P. Jacquet and R. Bonnard.—p. 947.
*Localized Insulin Lipodystrophy. F. Rathery and J. Sigwald.—p. 951.
Acute Enterococcal Meningitis: Spinal Injections of Serum from Individual Vaccinated with Bacillus of Patient. L. Langeron and R. Archer.—p. 957.
Purulent Pleurisy with Friedländer's Bacilli: Pleurotomy and Recovery. Laignel-Lavastine, Levy-Bruhl and A. Miget.—p. 963.
Lipoid Nephrosis in Child. M. Labbé, H. Bith and Laudat.—p. 968.

Spleen-Lymph Node Syndrome in Myeloid Leukemia.—Myeloid leukemia was diagnosed after two blood examinations, although clinical signs seemed to point to lymphogranulomatosis. After the first roentgen treatment, the number of myelocytes in the blood fell and remained low. The efficacy of the treatments progressively diminished. The patient died three years after the first appearance of the disease, with all the symptoms that mark the end of a case of leukemia. Doumer reports the case to show how the interpretation of a spleno-lymph node syndrome with myelocytosis may present problems in nosology that are difficult to solve, while the case also seems to indicate that the appearance of the lymph node syndrome does not always imply a rapidly fatal evolution of the disease.

Localized Lipodystrophy Due to Repeated Injections of Insulin.—Rathery and Sigwald discuss a case in which repeated injections of insulin for diabetes resulted in a localized lipodystrophy. Atrophic zones of subcutaneous fatty tissue first appeared near the site of the injections after daily treatments over a period of one month. There was no pain in these atrophic zones, no nerve disorder, no hardening of the skin, no effect on the general health of the patient. The lipodystrophy seemed to diminish eventually of its own accord. The insulin treatment should therefore not be modified. The authors suggest avoiding the atrophic condition by frequently changing the site of the injections.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 645-708 (May 31) 1930
*Traumatic Proliferation of Subpatellar Fatty Tissue: Case. A. Sicard.—p. 646.
*Postoperative Death with Hyperthermia and Facial Pallor in Infants. Riser, Cadenat and Lapasset.—p. 652.
*Rôle of Parietal Innervation of Arteries and Sympathetic Nervous System in Reestablishment of Collateral Circulation After Obliteration or Ligature. R. Leriche.—p. 657.
Surgery of Biliary Tract. A. Gosset.—p. 664.
Blood Transfusion Technic. Tzanck.—p. 676.
General Anesthesia by Means of Intravenous Injection of Ethyl Alcohol. G. Küss.—p. 687.
Cirsoid Aneurysm: Resection and Suture: Ten Cases. Tédenat.—p. 699.

Traumatic Proliferation of Subpatellar Fatty Tissue.—Two distinct lesions were noted by Sicard in this case. One was a prepatellar hygroma in which traumatism caused a hemorrhage; the other, a painful hyperplasia of the subpatellar fatty tissue following the same traumatism. The hygroma was easily removed. A retropatellar fatty mass, firm and infiltrated, the size of a small orange, was dissected out from below the patellar ligament; the synovial membrane was opened, revealing two normal synovial fringes projecting into the interior of the articulation on the inner side. They were extirpated with the fatty mass. The pain disappeared, and almost complete recovery of the functions of the knee was obtained within twenty-four days after the operation.

Postoperative Death with Hyperthermia and Facial Pallor in Infants.—An explanation of the problem of postoperative death with hyperthermia and facial pallor in the case of nurslings, together with the means of avoiding it, is discussed by Riser et al. After consideration of experiments made on animals and of observations made on patients they find that a double anesthetic, local and general, eliminates to a large degree the possibility of such accidents.

Rôle of Parietal Innervation of Arteries and Sympathetic Nervous System in Reestablishment of Collateral Circulation.—By means of experiments made on forty-five dogs, Leriche establishes the rôle of the vasomotor element in the pathologic physiology of phenomena consecutive to arterial obliterations. Experiments show that reestablishment of the circulation follows early after ligation as well as after arterial section but that it is reestablished more rapidly and completely after section than after ligation. Death ensues after resection of the terminal portion of the aorta and its branches unless this resection is preceded by a bilateral ablation of the lumbar sympathetic chain or by a lumbar ramisection. In that case, the animals appeared almost normal again within six days.

56: 709-734 (June 7) 1930
Intestinal Resection in Purpura Haemorrhagica. J. Fiolle, Poinso and Gary.—p. 710.
Exeresis in Cancer of Penis. Mauclaire.—p. 710.
Perforation of Gastric Ulcer Due to External Abdominal Traumatism: Case. Guimbellot.—p. 711.
Endometrioma of Rectum: Case. C. Matry.—p. 712.
Appendicitis with Urinary Disorders. G. Bachy.—p. 719.
*Metastatic Gas Phlegmon with Bacillus Perfringens. Botreau-Roussel and P. Huard.—p. 724.
Lymphangioma of Liver: Surgical Treatment and Cure. B. Desplas.—p. 725.
Synovectomy for Lipoma Arborescens of Knee in Posttraumatic Chronic Arthritis: Case. Madier.—p. 729.
Urethrostomy in Radium Therapy of Cancer of Penis: Case. Gernez, Mallet and Colliez.—p. 731.

Metastatic Gas Phlegmon with Bacillus Perfringens.—Although cases of metastatic phlegmon with *Bacillus perfringens* are rarely followed by recovery, Botreau-Roussel and Huard report such an instance in which gangrene, developing in an open fracture of the two bones of the left forearm, and in a closed, intra-articular fracture of the external condyle of the left femur, had necessitated the amputation of both members.

Journal de Chirurgie, Paris

35: 641-816 (May) 1930
*Treatment of Intestinal Intussusception in Adults. X. Delore and J. de Girardier.—p. 641.
Pericardiotomy by Epigastric Route. M. Fèvre.—p. 656.

Treatment of Intestinal Intussusception in Adults.—An early diagnosis of this disorder is urgent while disinvagination is still possible. This treatment is more simple and less dangerous than resection. Delore and de Girardier have found that the simplest, shortest and most successful method is the resection of the invaginated portion of the intestine through an incision in the intussuscipiens. The technic of the operation is given, together with observations made on five cases, all of which were permanently cured.

Journal d'Urologie Médicale et Chirurgicale, Paris

29: 441-536 (May) 1930
Arterial Tension in Tuberculosis of Kidneys and in Anuria. L. Elaut.—p. 441.
*Frequent Association of Epididymal and Renal Tuberculosis. J. Mombaerts and A. Laroche.—p. 459.
*Improvement of Postoperative Results in Prostatectomy. T. Katz.—p. 473.
Tamponade After Prostatectomy. De Illyés.—p. 495.

Frequent Association of Epididymal and Renal Tuberculosis.—In discussing the frequent association of genital and renal tuberculosis in men, Mombaerts and Laroche state that a genito-urinary tuberculosis does not exist; rather, these are two separate diseases in which lesions in either organ often appear after having developed in the other organ. In the urinary type, the disease is essentially renal. In the genital type it is epididymal, with renal tuberculosis latent. At the first sign of its development, it should be treated by nephrectomy. Histobacteriologic examination is urgent. Heliotherapy is often efficacious, but it is a prolonged method involving the danger of spreading the infection. Epididymectomy is preferable and should be performed early.

Improvement of Postoperative Results in Prostatectomy.—Prior to the prostatectomy, laboratory tests are made to determine as exactly as possible the renal insufficiency of the patient (cryoscopic point of the blood, indicanemia test, test for elimination of water and of the concentration power of the kidneys, and the rest nitrogen test). In preparation for the

operation the patient is given, perorally, phenyl salicylate, methenamine, methylthionine chloride and cardiac tonics. In certain cases it is more prudent not to resort to operation. In nearly all cases vasectomy is advisable since it may arrest the development of the adenoma, also the appearance of secondary phenomena, and especially suppress epididymitis. Chloroform and ether are distinctly harmful anesthetics in such operations. Katz also rejects lumbar and sacral anesthesia in favor of a local anesthetic by infiltration. A half hour before the resection, 0.02 Gm. of pantopium hydrochloricum is administered, and fifteen minutes later the bladder is filled with a 1 per cent solution of eucaine hydrochloride. The author gives a detailed description of the operation, pronouncing against tamponade and in favor of purely surgical hemostatic and aseptic methods. By these means, together with a careful postoperative regimen and treatment, the percentage of deaths in such cases has been greatly reduced. In none of the cases has there occurred postoperative hemorrhage, uremia, or any accident due to renal or pulmonary complications.

Lyon Chirurgical

27: 273-400 (May-June) 1930

*Surgical Treatment of Intestinal Tuberculosis Following Pulmonary Tuberculosis. L. Bérard and J. Heitz.—p. 273.
*Cancer of Parotid Gland: Surgical Treatment. L. Bérard, J. Creyssel and P. Colson.—p. 285.
*General Acute Peritonitis by Propagation in Biliary Lithiasis. R. Desjacques.—p. 307.

Surgical Treatment of Intestinal Tuberculosis.—Since intestinal tuberculosis follows so frequently in cases of pulmonary tuberculosis, early clinical and roentgen diagnoses, with laparotomy, are urgent. Bérard and Heitz recommend a surgical treatment with heliotherapy, ultraviolet rays and roentgen therapy as aids. If the patient's resistance is low, a palliative operation such as entero-anastomosis with or without exclusion is advisable. But wherever possible the authors advocate exeresis because of its efficacious results, especially in the ulcerous variety of intestinal tuberculosis.

Cancer of Parotid Gland: Surgical Treatment.—In treating cancer of the parotid gland, Bérard et al. observe that the best results are obtained from an extensive surgical exeresis followed by radium therapy or roentgen therapy. They find that no treatment by itself is as efficacious as a judicious association of methods.

General Acute Peritonitis by Propagation in Biliary Lithiasis.—The case of a patient, aged 68, with purulent peritonitis that had originated in a nonperforated gallbladder is described by Desjacques. He finds the theory of cause through propagation in this case more admissible than one of cause through an unknown or undiscovered perforation. The treatment was a simple subhepatic tamponade with cholecystostomy and the introduction of a drain into the rectovesical pouch.

Presse Médicale, Paris

38: 825-840 (June 18) 1930

Iodized Poppy-Seed Oil Diagnosis and False Cavitary Images. E. Sergent.—p. 825.
*Congenital Stigmas on Posterior Surface of Shoulder. Ombrédanne.—p. 827.
*Drainage of Purulent Tuberculous Pleurisy. P. Toussaint.—p. 828.
*Myelogenic Cancerous Anemia. R. S. Mach and F. Klages.—p. 831.

Congenital Stigmas on Posterior Surface of Shoulder.—Four cases of this kind were observed in a mother and daughter and in two sisters. The stigmas were congenital, infundibuliform, symmetrical and retroscapular. The child had one slightly deformed shoulder. In three of the four cases, movement produced crackling sounds. Ombrédanne is of the opinion that such stigmas are traceable to an intra-uterine ulcerous malady.

Drainage of Purulent Tuberculous Pleurisy.—Toussaint discusses the technic of two procedures for closed thorax drainage of tuberculous purulent pleurisy. To the procedure by oblique trajectory he prefers the normal trajectomy method with reduced incision, with or without limited costectomy. He used a metal drain composed of a keen trocar and a cannula with an inside diameter of 9 mm. and a length of 5 cm. The cannula has a slightly curved rectangular guard for closer adaptation to the chest. The guard has four clasps which permit fixation by two circular elastic bands. The author commends this type of drain because it does away with cutaneomuscular incision and, particularly, a costal resection; mutilation is greatly reduced with the consequent decrease in the danger from infection. He finds that this drain is tolerated perfectly and that it is retained for from four to five weeks. Moreover, by tightly adhering to the intact parietal tissues that enclose it, the drain jointed to the siphonage tube is strictly hermetic.

Myelogenic Cancerous Anemia.—In describing a case of myelogenic cancerous anemia, Mach and Klages note that it is accompanied by diffuse pains in the bones and sometimes by splenomegaly. The blood formula is that of a metaplastic anemia having for its characteristics (1) a decreased number of erythrocytes that present anisocytosis, poikilocytosis and polychromatophilia, (2) an increase in the total number of erythrocytes, (3) a large number of nucleated erythrocytes, (4) a neutrophilic leukocytosis, and (5) a myelocytosis that may reach 23 per cent of the leukocytes. The authors add detailed observations of an interesting case of anemia caused by carcinomatous metastasis in the marrow of the bones. Though rare, such anemia can be easily diagnosed by a blood test completed by means of roentgen examination. The pathogenesis of such a form of anemia and its compensatory hematopoieses deserve special study. The French in particular see in pernicious anemia only a purely secondary and reactional medullary participation. In the pathogenesis of anemia caused by generalized carcinosis of the bony structure it is the local alteration of hematopoietic tissue, a medullary destruction by encroachment of the neoplasm, that occupies the foreground. The result of the destruction is the initiation of a compensatory but now vain and inadequate hematopoiesis. Another proof of the myelogenic origin of such an anemia lies in the absence of hemosiderosis, as there was no trace of any destruction of blood corpuscles in either the liver or the spleen in the case the authors described.

Revue Belge des Sciences Médicales, Louvain

2: 435-492 (May) 1930

Physicochemical Structure of Nervous Cells and Rôle of Enzymes in Phenomena of Life of Neuron. G. Marinesco.—p. 405.
*Parasitic or Pseudoparasitic Figures in Human Cancer. J. Maisin and E. Picard.—p. 430.
Adiposogenital Degeneration Complicated by Diabetes Mellitus. A. Landau, M. Fejgin, M. Temkine and J. Cygelstreich.—p. 442.
Rôle of Suprarenal-Sympathetic Nervous System in Maintenance of Organic Stability. W. B. Cannon.—p. 450.

Parasitic or Pseudoparasitic Figures in Human Cancer.—A microscopic examination in three cases of early small nonulcerous cancer revealed in the tumors figures clearly parasitic in appearance. Maisin and Picard noted in them a resemblance to certain stages in the evolution of various blastomycoses.

Revue Française de Gynécologie et d'Obst., Paris

25: 353-448 (June) 1930

Problems and Progress in Obstetrics in Algeria. A. Laffont.—p. 353.
Referred Cutaneous Sensory Phenomena in Gynecology. A. Laffont and H. Ezes.—p. 374.
Vaccinotherapy in Inflammation of Uterus and Its Adnexa. F. Ferrari.—p. 390.
Importance of Manual Delivery: 772 Cases in the Algiers Maternity Hospital. E. Houel and H. Ezes.—p. 413.
Care of Infants in the Algiers Maternity Hospital. M. Binet.—p. 423.
Complete Inversion of Uterus Three Days After Childbirth: Case. M. Jahier.—p. 426.
Osteomalacia in Native Women in the Algiers Maternity Hospital. A. Laffont and M. Sesini.—p. 430.
Probable Relation Between Puerperal Eclampsia and Hyperguanidinemia. M. Malmejac.—p. 435.
*Ovarian Reactions in Animals After Injections of Spermatozoa. H. Fulconis and L. Chiapponi.—p. 441.
*Biologic Diagnosis of Pregnancy. A. Laffont and L. Chiapponi.—p. 444.

Ovarian Reactions in Animals After Injections of Spermatozoa.—A series of experiments on rats was carried out by Fulconis and Chiapponi to determine whether there are really two antehypophyseal hormones, one of sexual hyperactivity, the other of sexual arrest, provoking luteinization phenomena. Their experiments were limited to the sterilization

of the female organism by parenteral injections of spermatozoa. These subcutaneous injections in rats involved reactions of which one of the most apparent was manifested by a momentary inhibition of the external secretory functions of the ovary, followed by a hyperactivity of this gland. The appearance of the gland showing the temporary arrest of its activity recalls the one that the organ presents after the introduction into the female organism of an antehypophyseal substance.

Biologic Diagnosis of Pregnancy.—A biologic method developed by Zondek and Aschheim was employed by Laffont and Chiapponi to diagnose pregnancy in its early stages. To the filtered morning urine of twelve women patients of whom six were pregnant, there was added a few drops of acetic acid. Two daily injections of 0.4 cc. of this urine were given to prepubertal rats. In every case the animals that received injections of the urine of the pregnant patients showed a clear reaction, while no reaction occurred in the animals that received injections of urine from the nonpregnant patients.

Annali Italiani di Chirurgia, Naples

9: 503-612 (June 30) 1930

Perithelioma of Femur. M. Dainelli.—p. 503.
Localizations in Kidneys in Course of Experimental Staphylococcic Septicemia. M. Cilento.—p. 530.
*Action of Amniotic Fluid Introduced into Peritoneal Cavity in Formation of Postoperative Peritoneal Adhesions. G. Giordanengo.—p. 543.
Chronic Invagination of Jejunum Due to Intraparietal Lipoma: Enterectomy: Recovery. G. Forni.—p. 556.
Clinical and Experimental Study on Arteriography. L. Sussi.—p. 575.
Two Aneurysms, One Spontaneous the Other of Parasitic Origin, of Right Popliteal and of Left External Carotid Artery, Respectively: Operation: Recovery. O. Cantelmo.—p. 590.

Action of Amniotic Fluid Introduced into Peritoneal Cavity.—Giordanengo reaches these conclusions from his experiments on guinea-pigs: The introduction of amniotic fluid into the peritoneal cavity does not provoke, as Hebert affirms, a fibrinous exudation and the appearance of leukocytes, either in the first hours after the introduction or later. The introduction of amniotic fluid into the peritoneal cavity in moderate quantities does, however, provoke considerable hyperthermia and hyperleukocytosis of short duration. The author does not think that one can ascribe to this reaction, which he considers due to the introduction of heterogenous proteins, the advantages ascribed by Hebert to the amniotic fluid as a preventive of postoperative peritoneal adhesions.

Clinica Medica Italiana, Milan

61: 221-330 (May-June) 1930

Acute Pulmonary Edema. P. Tremonti.—p. 221.
*Benign Neoplasms of Stomach. C. Semenza.—p. 242.
Functional Hyperinsulinism. G. Lami.—p. 264.
*Monocytes and Biohumoral Reactions in Tuberculous Infection. G. F. Capuani.—p. 279.

Benign Neoplasms of Stomach.—Semenza says that benign neoplasms of the stomach are rare in comparison with gastric cancer, and the cases reported in the literature do not exceed a thousand. Still more rare is the possibility of preoperative diagnosis of a benign neoplasm. After giving an ample review of the literature on the subject, the author reports an interesting observation in which he extracted a piece of the neoplasm, which, when examined microscopically, proved to be a benign polyp. The roentgen examination furnished valuable data on the seat, the form, the volume and the various roentgen peculiarities of the benign neoplasm, all of which facts were confirmed by the surgical intervention. After an accurate examination of the various symptoms and discussion of their diagnostic value, the author concludes that the clinical symptoms of benign neoplasms have nothing especially characteristic. Palpation furnishes slight aid. If the tumors are large, there will be noted a contrast between the development of the neoplasm and the well preserved general condition of the patient. The presence of blood in the feces has greater diagnostic value. If such an observation is only occasional, that would help to differentiate the benign from the malignant types, in which occult hemorrhage is constant. Examination of the gastric chemism gives often hypochlorhydria or anachlorhydria; there are also cases with normal acid content. Spontaneous or provoked pain is generally absent. Vomiting occurs when the tumor is highly ulcerated or disturbances of canalization are present. In general, when, in the presence of a gastric tumor, the symptoms that commonly occur in cancer are absent, one may advance the hypothesis of a benign neoplasm.

Monocytes and Biohumoral Reactions in Tuberculous Infection.—Capuani draws from his researches these conclusions: Monocytosis expresses better than another hemogram the degree of diffusion of a tuberculous infection. It has in addition a certain specific significance. The identification of monocytes in the blood stream is rather difficult with the methods of staining that are now used. This technical difficulty is such as to lessen materially the practical value of the study of monocytosis. Monocytosis is not sufficiently evident in the beginning stages of tuberculous infection to be of much aid for the early diagnosis of tuberculosis. With the increase in the number of monocytes, there is a corresponding tendency for the temperature to increase, at least up to a certain limit. With a high fever due to the tuberculous process, there is always a proportionate increase in the number of monocytes. With monocytosis is associated constantly an accentuation in the lability of the plasma, which reaches its maximal values with the first increases in the monocytosis. With the increase in the monocytes, there is also an increase in the hypersensitiveness to tuberculin, which reaches its maximal values with the first numerical increases in the monocytes. The antibodies of tuberculosis become more copious as monocytosis increases. The lymphocytes, on the other hand, decrease with the increase in the antibodies. The lipases follow the behavior of the lymphocytes. The specific enzymes are proportionate quantitatively to the monocytosis. The method of studying the monocytosis enables the examiner thus to follow not only the clinical but also the biohumoral course of the tuberculous infection.

Clinica Pediatrica, Modena

12: 281-370 (April) 1930

*Artificial Pneumothorax in Pulmonary Tuberculosis in Children. A. Pachioli.—p. 281.
*Sugar in Alimentation of Infants in Normal and in Pathologic Conditions. G. Battistini.—p. 311.
*Ulcerous Pulmonary Tuberculosis in Infants. M. Guzzini.—p. 355.

Artificial Pneumothorax in Pulmonary Tuberculosis in Children.—Pachioli treated eighteen children, aged from 15 to 11 years, with pulmonary tuberculosis, with artificial pneumothorax. The first patient was treated five years ago. Of these patients two died, while under treatment; in two others the pneumothorax was interrupted because a satisfactory collapse of the pathologic lung could not be obtained; three patients had no benefit from the treatment; nine had great improvement, and two made a clinical recovery. The author says that in unilateral closed pulmonary tuberculosis in early childhood, artificial pneumothorax frequently leads to definite recovery from the disease. In forms of open pulmonary tuberculosis with cavitation, artificial pneumothorax is the only treatment that gives improvement. It gives long periods of suspension of the disease, with a feeling of well being. Ultimately, definite recovery may ensue. The author considers the treatment as useful in children as it is in adults. Its dangers and technical difficulties are the same in the young as in the old. Initial forms as well as bilateral forms of tuberculosis may be benefited by unilateral artificial pneumothorax.

Sugar in Alimentation of Infants in Normal and in Pathologic Conditions.—Battistini gave to some infants sugar (saccharose, invert sugar, lactose or dextrose) for different periods of time for the purpose, first, of testing the tolerance or utilization of one kind of sugar and of a mixture of sugars as food and, second, to test the therapeutic value of invert sugar in the treatment of constipation and of saccharose in the treatment of persistent vomiting. Saccharose was tolerated best and gave the best results as a food. The tolerance of sugars depends on the general condition of the infants and of their digestive tract. Invert sugar has a laxative effect similar to that of lactose. The administration of large doses of saccharose to

V 9
193

infants with persistent vomiting yielded good results. This treatment is of value because by diminishing vomiting it permits the infant to gain in weight.

Ulcerous Pulmonary Tuberculosis in Infants.—Guzzini considers ulcerous pulmonary tuberculosis a frequent occurrence in infants, though rarely diagnosed during life. The presence of ulcerous pulmonary tuberculosis should be kept in mind in cases of protracted pulmonary diseases in infants. In these cases neither the clinical symptoms nor the evolution of the process point to its tuberculous nature. The condition may be mistaken for other more benign pulmonary processes. The author reports seven cases diagnosed at necropsy. In one of the cases a spontaneous pneumothorax resulted from the direct opening of a large cavity into the pleura.

Policlinico, Rome

37: 941-980 (June 30) 1930. Practical Section

*Pathogenesis and Treatment of Gas Gangrene. G. Baggio.—p. 941.
Infantile Cerebral Paraparesis Combined with Adiposogenital Syndrome. E. de Angelis.—p. 944.
Cephalic Embryotomy. C. A. Perri.—p. 947.

Pathogenesis and Treatment of Gas Gangrene.—Baggio describes a case of gas gangrene of the leg, in which the infection was associated with lesions of the vascular fascia and in which the destructive process was confined to the group of extensor muscles.

Riforma Medica, Naples

46: 794-832 (May 26) 1930

Experimental Researches on Pathogenic Action of B C G Vaccine and on Its Immunizing Value in Guinea-Pigs. T. de Sanctis Monaldi.—p. 796.
*Diffusion of Vaccine Virus Through Central Nervous System Following Cutaneous Inoculation. L. Cattaneo.—p. 805.
Extraction of Foreign Bodies from Bronchi. D. Rolland.—p. 807.

Diffusion of Vaccine Virus Through Central Nervous System Following Cutaneous Inoculation.—Cattaneo affirms that certain special types of vaccine virus (neurovaccines), which have the property of "taking" in tissues of mesodermic origin and which spread easily in the circulating blood, when inoculated into the skin of the rabbit in the height of the process can be discovered in the nervous system, provided the research is carried out by the Ohtawara enrichment method. On the other hand, the common skin vaccines (in the author's case the vaccine lymph of the Vaccinogenic Institute of Pavia), which do not have the property of taking in tissues of mesodermic origin and which do not have a tendency to spread in the blood stream, when inoculated into the skin of the rabbit cannot be discovered in the nervous system by the Ohtawara method; hence there is no possibility that vaccination with this material is the direct cause of accidents of any kind involving the nervous system.

Prensa Médica Argentina, Buenos Aires

16: 1649-1692 (May 30) 1930

*Multiple Cerebral and Cerebellar Abscesses Complicating Bronchiectasis. N. Romano, R. Eyherabide and A. Bianchi.—p. 1649.
*Atypical Herpes Zoster of Palate. A. Camauër and J. I. Sacón.—p. 1670.
Vulvovaginitis in Infants. J. C. Berri.—p. 1676.
Endometriosis with Multiple Location. L. E. Palazzo and R. Sammartino.—p. 1679.
Crusade Against Cancer of Uterus: How to Perform a Good Biopsy. J. C. Berri.—p. 1685.

Multiple Brain Abscesses Complicating Bronchiectasis.—Romano et al. report that their patient, aged 46, had a bronchopleuropulmonary process of five months' duration. The persistent cough with no expectoration at first was followed by an abundant purulent and fetid expectoration. The bacteriologic examinations of the sputum were negative for tubercle bacilli. Artificial pneumothorax was induced. Because of the pleural adhesions, only 100 cc. of filtered air could be injected. The diagnosis of bronchiectasis was made on the basis of the clinical symptoms and of the roentgen examination of the respiratory tract, after injection of iodized oil. The pleurobronchopulmonary syndrome was followed by a nervous syndrome with symptoms of cranial hypertension, clearly indicating the presence of cerebral abscesses. Five days after the appearance of the nervous syndrome, the patient died in coma. At the necropsy several cerebral and cerebellar abscesses (both of old and of recent formation) were found, which the authors consider as having been secondary to bronchiectasis. That the nervous syndrome caused by the cerebral abscesses had no relation to the pneumothorax was proved by the good tolerance of the patient to the injection of air, by the old formation of some of the brain abscesses, and especially by the fact that the bacteriologic examination of the pus from the abscesses gave the same bacteria that were isolated from the bronchial secretions. This fact proves that the abscesses were purulent metastases of bronchiectasis.

Atypical Herpes Zoster of Palate.—Camauër and Sacón report the case of a patient, aged 48, who had burning pain with odynophagia, moderate and slightly painful regional adenopathy, and a symmetrical vesicular eruption with absence of general symptoms. The late appearance of the rash points to an atypical form of herpes zoster. The authors review the literature and present some anatomic data and illustrations in support of their belief that the union of the internal left and right branches of the sphenopalatine nerve is the anatomic reason for the bilateral localization of herpetic eruptions in herpes zoster of the palate. The herpetic eruption is the epiphenomenon of the symptoms caused by a ganglionitis of the sphenopalatine ganglion. As treatment the authors advise the use of intravenous injections of methenamine, autohemotherapy and ultraviolet irradiations. When the pains (either preceding or following the appearance of the herpes) are unbearable, anesthesia by the nasal route through the anterior palatine foramen should be tried.

Semana Médica, Buenos Aires

37: 1341-1404 (May 29) 1930

Pathogenesis of Pulmonary Congestion in Bernheim Syndrome. T. Martini and M. Josselevich.—p. 1341.
Drainage of Circumscribed and General Peritonitis of Appendicular Origin. A. Vodice.—p. 1352.
Technic of Use of Radiohisteury. P. Jáuregui.—p. 1369.
Syphilis of Bladder in Tumor Form: Two Cases. J. W. Alvarez Colodrero and P. di Lella.—p. 1380.
*Hemolytic Serotherapy in Multiple Sclerosis. N. T. Koressios.—p. 1393.

Hemolytic Serotherapy in Multiple Sclerosis.—Koressios considers hemolytic serotherapy as specific treatment in multiple sclerosis. He considers that among the reactions (general, local and focal) caused by the treatment, focal reactions are the most important. He also believes that the results of the treatment depend on the duration of the disease: The patients who had had the disease for a short time were completely recovered after the treatment; those who had suffered with the disease for a longer time improved, and no benefit was obtained for those patients in whom the disease was of long duration. The author places his patients in two groups: The first group comprises ten patients who had had the disease for a short period. Three of the ten patients are completely recovered both from the organic and from the functional point of view, after two or three years of treatment. The other seven patients of this group seem to have recovered completely, though the results should be considered as definite after two or three years without recurrence. In this group the treatment yielded 100 per cent of recoveries. The second group comprised all the patients who had had the disease during that one year. In this group a definite recovery was not obtained. Some of the patients, however (those who had had the disease for a shorter time than the remainder of the same group), obtained some improvement. They were unable to walk before the treatment and now they can walk with the aid of a cane. Nevertheless, the presence of a constant Babinski sign points out the persistence of irreparable spinal cord lesions. The treatment in the patients of this group is ineffective. The author says that the mechanism of action of the serum is still unknown. He states, however, that in various diseases of the blood, as pernicious anemia, paraplegia of unknown origin is sometimes observed. The paraplegia develops as a focal reaction, which is analogous to the focal reaction that the hemolytic serum provokes, probably by acting on the spinal cord through the blood.

Siglo Médico, Madrid

85: 605-632 (June 7) 1930

*Production of Fixation Abscess in Treatment of Congenital Cystic Lymphangioma. E. Suñer.—p. 605.
Indications for Surgical Treatment in Cholelithiasis. R. Luis y Yagüe. —p. 607.

Production of Fixation Abscess in Treatment of Congenital Cystic Lymphangioma.—Suñer's patient, aged 5 years, had a deforming congenital cystic lymphangioma under the lower maxilla. Electrolysis failed to yield results. The injection of 0.5 cc. of sterilized oil of turpentine caused an inflammatory reaction so painful during the first twenty-four hours as to necessitate the administration of sedative and analgesic drugs. Three days after the injection, the abscess ruptured and a large quantity of pus was discharged. The results were apparently good, but after a month and a half the development of the cyst was again observed. An injection of 0.25 cc. of sterilized oil of turpentine caused another abscess to develop. However, after the evacuation of the pus this time, the results were permanently satisfactory. The author considers the method a good substitute for surgery, or practicable when surgery fails. Its only disadvantage (the painful reaction caused during the first twenty-four hours) may be offset by the administration of sedatives and analgesics. The author advises its use in some other local inflammatory processes.

Archiv für Verdauungs-Krankheiten, Berlin

47: 305-434 (June) 1930

*Agastric Anemias and Their Relations to Pernicious Anemia. P. Morawitz.—p. 305.
*Periodic Acetonemic Vomiting in Migraine in Children. H. Curschmann. —p. 318.
Experimental Evaluation of Test Breakfasts. M. K. Petrowa and S. Ryss.—p. 328.
Occult Hemorrhages: Oxidation Enzymes and Undecomposed Hemoglobin in Feces. I. Boas.—p. 347.
Chronic Intestinal Stasis: Roentgen Diagnosis. A. E. Uspensky.—p. 362.
Diabetes Mellitus: Diagnosis and Treatment. E. Lyon.—p. 380.
*Bactericidal Function of Stomach. A. Klinge.—p. 393.
Parasyphilitic Cholangeitis. M. Schour.—p. 401.

Agastric Anemias and Their Relations to Pernicious Anemia.—Morawitz states that severe anemias following extensive resections of the stomach (agastric anemias) do not always present the blood picture of pernicious anemia; even in the same patient, various kinds of blood pictures may be noted successively. Three cases of agastric anemias with hematic changes resembling those that occur in pernicious anemia, secondary anemia and aplastic anemia are reported. The close relation between agastric anemias and true pernicious anemia is evident from the fact that both may improve under liver treatment. The success of liver treatment is apparently not always dependent on the presence of a so-called pernicious anemia blood picture because this form of treatment is also effective in some types of secondary anemia. Achylia, which is perhaps an obligate condition for the development of pernicious anemia and for agastric anemias, may be the common etiologic factor that explains the relatively frequent concurrence of pernicious anemia and cancer of the stomach. That achylia is the only important requirement for the development of achylic anemias appears improbable. The assumption that other variable, extragastric factors are involved makes it easier to understand the so-called atypical pictures that closely resemble the picture of pernicious anemia. The classification of anemias will be unsatisfactory until it is based not only on the morphology of the blood but also on the etiology.

Periodic Acetonemic Vomiting in Migraine in Children.—Curschmann reports the case of a boy, aged 5 years, whose mother, grandmother and several other female relatives had migraine, and whose brother had adiposogenital dystrophy. The child had at first had attacks of pain in the head and stomach at long intervals and lasting from one to two and a half days. At first they had not been accompanied by dangerous acetonemic symptoms. On the basis of negative physical and roentgen examinations, a diagnosis of infantile abdominal migraine was made. Later the patient had had two severe typical attacks of acetonemic vomiting. The first attack had been stopped in less than one day by the administration of dextrose by mouth and in the form of infusions and by the administration of insulin and cardiants. In the second attack it had been necessary to give only insulin and cardiants to end the acetonemic state. A third attack, which likewise developed without any demonstrable cause, at first appeared to be a light one. On the third day the vomiting diminished in intensity and on the fourth day it disappeared completely. On the third day, however, a rapidly increasing cardiac weakness appeared and progressed to a fatal outcome in spite of all cardiac and vasomotor drugs. The condition closely resembled that seen in cases of diabetic coma in which the patients die despite compensation of the glycosuria and glycemia without coma and from circulatory insufficiency. Apparently the case was an instance of abdominal equivalents in infantile migraine, as indicated by the homologous migraine heredity, mostly on the maternal side, and the previous lighter attacks of headache and gastralgia with vomiting and diarrhea. Although abdominal equivalents in migraine are rare in adults, they are almost constant in children. The abdominal symptoms may appear in all possible forms and degrees, as mild gastralgia with vomiting, abdominal pains that may exceed the hemicrania in intensity, and abdominal "colics" with vomiting and frequently with diarrhea. The author believes that the so-called umbilical colics in infancy, which are frequently diagnosed as appendicitis, gastric or duodenal ulcer or renal colic, are usually instances of abdominal migraine.

Bactericidal Function of Stomach.—According to Klinge, the contents of the stomach during fasting are usually sterile in cases of uncomplicated achylia. The hydrochloric acid of the gastric juice, therefore, cannot be the general disinfectant principle of the stomach. Accordingly, in conformity with the old views held on the subject, he presupposes a special bactericidal action of the living mucous membrane of the stomach, which fails only in severe functional disturbances.

Beiträge zur Klinik der Tuberkulose, Berlin

74: 1-226 (May 23) 1930

Chronic, Hematogenous, Disseminated Tuberculous Infiltrations of Lung. J. Hein.—p. 3.
*Gerson-Herrmannsdorfer Diet in Children and Youths. H. Starcke.—p. 61.
*Insulin Treatment of Diabetes in Persons with Pulmonary Tuberculosis. H. Weskott.—p. 89.
*Primary Actinomycosis of Lung. F. Oldenburg.—p. 92.
Marriageability of Women in Tuberculosis Sanatoriums. E. Gabe.—p. 100.
*Open Pulmonary Tuberculosis in Families. W. Hartmann.—p. 109.
Open Pulmonary Tuberculosis: Age Incidence and Prognosis. H. Grass. —p. 128.
Perifocal Infiltrations in Adults. G. Schellenberg.—p. 143.
Bilateral Collapse Therapy in Advanced Pulmonary Tuberculosis. H. Scholz.—p. 146.
*Plug Treatment of Pulmonary Tuberculosis. W. Sachs and W. Sperl. —p. 168.
Plastic Operations in Pulmonary Tuberculosis: Causes of Failure. W. Sachs.—p. 184.
Bilateral Pneumothorax in Pulmonary Tuberculosis. W. Sachs and F. Hoth.—p. 191.
*Division of Pleural Adhesions. W. Sachs.—p. 204.
Congenital Intrapulmonary Cyst. O. Steinmeyer.—p. 210.
Pleural Adhesions: Mode of Origin of Calcification. G. Eversbusch. —p. 219.
Thoracoplasty in Relation to Labor. Busch.—p. 223.

Gerson-Herrmannsdorfer Diet in Children and Youths.—Starcke tested the Gerson diet as modified by Herrmannsdorfer in thirty-one children and youths with pulmonary and surgical tuberculosis. The cod liver oil was given without phosphorus. Although the diet has a high caloric value, it did not produce a greater increase in weight than the diet that had been used previously. The course of the disease was not modified. The results obtained in both pulmonary tuberculosis and surgical tuberculosis were not any better than the results obtained with a diet that contained salt. In intestinal tuberculosis the salt-free diet had a deleterious effect. In some of the patients the diet produced a loss of appetite and vomiting. The action of the salt-free diet is to be explained by its high caloric value, a nonspecific protein therapy, and a marked psychotherapeutic factor. Since the action may be obtained in a simpler manner, the complicated Gerson-Herrmannsdorfer

diet is not indicated in the treatment of tuberculosis in children and youths.

Insulin Treatment of Diabetes in Persons with Tuberculosis.—Contrary to the opinions of Blum and Schwab, Veiel, Laqueur, Fränkel, Polak, Daniels, Richter and other authors who believe that in diabetes in persons with pulmonary tuberculosis an exacerbation in the latter condition is produced by insulin treatment, Weskott advocates this form of treatment. During the past five years he has not observed any instances of deleterious effects produced in tuberculous persons by insulin. In some patients the tuberculous process has even improved under the administration of insulin in carefully increased doses. In conclusion he states that his experiences confirm the point of view of Noorden and Isaac, who state that in a disease whose course, even when not complicated by diabetes, is as variable as that of tuberculosis it seems premature at present to attempt to state definitely the effect of insulin on the prognosis when the two conditions concur.

Primary Actinomycosis of Lung.—Oldenburg reports a case of primary actinomycosis of the left lung, noteworthy because of the early appearance of anemia and cachexia. The diagnosis of the primary focus was not made until metastases developed on the lower extremities. The source of infection could not be demonstrated with certainty. A postmortem examination revealed scars in the apex of the left lung and it was assumed that the actinomycosis had begun here in a focus of tuberculosis. Emphasis is laid on the importance of an early diagnosis if the life of the patient is to be saved.

Open Pulmonary Tuberculosis in Families.—On the basis of a study of open pulmonary tuberculosis in 1,097 families, Hartmann states that infants and children exposed to this condition contract it soon after the contact. In youths and adults, on the contrary, tuberculosis usually does not develop until a long time after the death of the person who was the source of the infection. The long interval between the original possibility of infection and the development of the open tuberculosis is probably a true latent period in the sense that the tuberculous process at first is not noted clinically or heals and does not flare up until years later.

Plug Treatment of Pulmonary Tuberculosis.—Eight cases of cavernous tuberculosis in which paraffin plugs were used are reported. In most of the cases the results were unsatisfactory and Sachs and Sperl believe that this form of treatment should be used only when other forms of surgical treatment are contraindicated.

Division of Pleural Adhesions in Artificial Pneumothorax.—Sachs reports four similar cases of pneumothorax in two of which he used open and in two closed division of pleural adhesions. On the basis of his experiences, he warns against the open method and recommends the closed method.

Folia Haematologica, Leipzig

41: 189-306 (June) 1930

Morphology of Blood: Historical Review. M. Rachmilewitz.—p. 189.
*Staining of Blood Smear: Combination Reaction. H. N. Brinnitzer.—p. 240.
Atypical Leukemias: Three Cases. E. Somló.—p. 245.
*Acute Myeloblastic Chloroma: Treatment. M. B. Rosenblum and M. A. Lebedewa.—p. 255.

Staining of Blood Smear.—Brinnitzer describes a combination of a peroxidase reaction and Giemsa staining in blood smears. The staining gives, in addition to a panoptic blood picture, a positive peroxidase reaction in all cells of the leukocytic series, of the myelocytes, the monocytes and some of the myeloblasts. The lymphoid cells and some of the myeloblasts do not show granulations. The method was tested on normal and on leukemic blood pictures.

Treatment of Acute Myeloblastic Chloroma.—In two cases of acute myeloblastic chloroma, temporary improvement in the subjective condition of the patients was obtained by means of injections of neoarsphenamine. The vomiting and hemorrhages from the pharynx and soft palate stopped, the general condition of the patients improved, and the changes in the blood picture became less marked. Rosenblum and Lebedewa believe that these good results correspond to the good results obtained with arsphenamine in other forms of infection with *Bacillus fusiformis* and constitute presumptive evidence in favor of the etiologic significance of *B. fusiformis* in myeloblastic chloroma.

Zeitschrift für Tuberkulose, Leipzig

57: 1-128 (June) 1930

Tuberculosis Mortality in Civilized Countries. G. Wolff.—p. 1.
*Tuberculosis Morality in France. L. Bernard and I. Biraud.—p. 23.
Tuberculosis Mortality in U. S. S. R. I. I. Feinschmidt.—p. 32.
*Salt-Free Diet in Tuberculosis. A. Herrmannsdorfer.—p. 40.
*Sauerbruch-Herrmannsdorfer Diet in Chronic Pulmonary Tuberculosis. M. Mecklenburg.—p. 47.
*Extract of Cod Liver Oil Exposed to Ultraviolet Rays or Ozone in Treatment of Tuberculosis. R. Bergman, J. Möllerström and O. Reuterwall.—p. 58.
Incidence of Tuberculosis in Pupils of Tuberculous Teachers. F. Ickert.—p. 60.
Standardization of Evaluation of Tuberculin. C. Prausnitz.—p. 69.

Decrease in Tuberculosis Mortality in France.—In a study of statistics that have been compiled since 1876, it was found that the tuberculosis mortality in France is on the decline. The decrease has not been as great, however, as it has in more urbanized and industrialized countries. The decrease has been greater in the cities than in the country and during the last few years it has been accelerated. Bernard and Birand believe that the decrease in the tuberculosis mortality in France has been the result of an increase in the number of tuberculosis centers and tuberculosis sanatoriums.

Salt-Free Diet in Tuberculosis.—Herrmannsdorfer gives four case histories (illustrated with roentgenograms and pictures in color) that demonstrate the efficacy of a salt-free diet in tuberculosis. The first patient had a tuberculous empyema of the right wrist joint, complicated by a mixed infection and fistula formation on the flexor side. The second had a lupus ulcerosus et crustosus of the neck and face with destruction of the right eye. The third had a lupus vulgaris exulcerans of the face. The fourth had a productive cirrhotic tuberculosis of both lungs with small areas of necrosis in the right apex; on the patient's back was a large opening that had been made to drain a cavity in the right lower lobe.

Sauerbruch-Herrmannsdorfer Diet in Chronic Pulmonary Tuberculosis.—Mecklenburg placed thirty patients with moderately severe chronic pulmonary and laryngeal tuberculosis on the Herrmannsdorfer diet for seven months. The diet used conformed strictly to the most recent instructions given by Herrmannsdorfer. A curative action was not noted but the diet seemed to have a favorable influence on functional disturbances of various organs that had undergone changes as a result of the tuberculous infection. It therefore increases the possibilities given by the hygienic-dietetic treatment of tuberculosis.

Extract of Cod Liver Oil Exposed to Ultraviolet Rays or Ozone in Treatment of Tuberculosis.—In a series of experiments, Bergman et al. studied the effect of an aqueous extract of cod liver oil exposed to ultraviolet rays or ozone when administered to guinea-pigs before or after they were inoculated with tubercle bacilli. They found that in most instances the treatment had no prophylactic or therapeutic action. In the animals treated prophylactically with cod liver oil exposed to ozone, however, the indurative changes were more marked than they were in the other animals.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

74: 3077-3216 (June 21) 1930

Lymphocytosis in Children. J. Haverschmidt.—p. 3082.
*Effects of Artificial Heliotherapy on Blood. W. J. H. Bungenberg de Jong.—p. 3092.
*The Leyden Cowpox Substance. E. Gorter and H. J. van Nederveen.—p. 3098.
Remarks on Angina Pectoris. J. J. de Jong and J. B. Kleyn.—p. 3107.
*Simple Method for Determination of Blood Sugar. C. L. de Jongh.—p. 3115.

Effects of Artificial Heliotherapy on Blood.—Bungenberg de Jong reports that, following long continued ultraviolet irradiation, one observes in guinea-pigs an increase in white blood cells. The polychromatophil cells in the blood of guinea-pigs that have been irradiated for a long time increase; the cells with vital granules remain unchanged. The resistance of

red blood cells of human beings to anisotonic salt solutions is increased by ultraviolet rays, which manifestation continues for a long time after the irradiation ceases. The minimal resistance shows irregular changes. Rhoden's theory that the changes in resistance are dependent on young red blood cells that enter the blood stream the author cannot connect with vital granulation and polychromatophilia.

The Leyden Cowpox Substance.—Gorter and van Nederveen bring out that the Leyden cowpox is used in places with an average chance of encephalitis and at the same time of year in which other strains caused encephalitis, but the results, aside from the fact that the number of cases is small, are not comparable since the children who were vaccinated with the Leyden strain averaged younger than the children who were vaccinated with other strains.

Simple Method for Determination of Blood Sugar.—De Jongh's method requires 0.2 cc. of blood (derived from pricking the finger), which is drawn into a pipet. The blood is transferred to a test tube containing 1.8 cc. of water. To this is added 1 cc. of a 1.2 per cent solution of trinitrophenol, whereby the albumin is precipitated. The albumin is filtered out, and the filtrate is mixed with 10 per cent sodium hydroxide solution in the proportion of 10 to 1. The mixture is boiled and allowed to cool and is then put in a tube. The comparison is made and the blood sugar values are read. The results compare closely with those obtained by titrimetric methods, but, whenever one has the choice between colorimetric and titrimetric methods, preference should be given to the latter.

Norsk Magasin for Lægevidenskapen, Oslo

91: 577-704 (June) 1930

*Arachnoidal Cysts. K. Nicolaysen and M. Haaland.—p. 577.
*Treatment of Appendicitis in Drammen Hospital. C. Bruusgaard.—p. 584.
*Lumbar Spondylitis: Corset Treatment. Sinding-Larsen.—p. 593.
*Tuberculosis of Foot Joint and Tarsus: Operative Treatment. Sinding-Larsen.—p. 608.
*Diaphragmatic Hernia into Esophageal Opening of Diaphragm. J. Frimann-Dahl.—p. 616.
Roentgen Determination of Conjugata Vera. U. Sverdrup.—p. 621.
*After-Examination of Patients Operated on for Inguinal and Femoral Hernias. E. Moen.—p. 624.
*Malignant Lymphogranulomatosis of Intestine. R. Ringdal.—p. 634.
*What Can We Learn by Following the Course of Tuberculosis from Generation to Generation? K. F. Andvord.—p. 642.
*Significance of Periodic Height and Weight Measurements in School Children. P. M. Holst.—p. 661.
*Lead Poisoning. H. Hegna.—p. 673.

Arachnoidal Cysts: Case.—Nicolaysen and Haaland maintain that clearly defined cyst formation may occur between the dura and the pia of the spinal cord and cite the case of a man, aged 45, with a history of spinal symptoms, recurring spastic paresis of the right leg a year later, and slowly increasing symptoms. An injection of 2 cc. of iodized poppy-seed oil into the cerebromedullary cistern showed complete occlusion of the spinal canal at the third thoracic vertebra. Laminectomy disclosed that the subarachnoid space was filled with small cysts ranging in size from a pea to larger than a bean, some slightly adherent to the dura. Seven months after removal of the cysts the patient could walk normally and do his ordinary work. On microscopic examination of four of the cysts, no echinococcus hooks or other signs of animal parasites were seen. The cyst walls consisted of fine connective tissue fibers with scattered elastic fibers; there was a continuous single cell lining of epithelial or endothelial character. The cysts are believed to have developed from the arachnoid and may have been of inflammatory origin. Arachnoidal cysts should be borne in mind among the possible causes of compression of the spinal cord.

Treatment of Appendicitis.—Bruusgaard reports on the 3,349 patients with acute and the 3,023 with chronic appendicitis treated in the Drammen municipal hospital from 1895 to Jan. 1, 1930.

Lumbar Spondylitis: Corset Treatment.—Sinding-Larsen advocates the use of corsets in the treatment and after-treatment of spondylitis, not as the only method but as a useful and safe method when immobilization in bed is not necessary.

Tuberculosis of Foot Joint and Tarsus: Operative Treatment.—Sinding-Larsen presents roentgenograms from sixteen cases, observed for from three to twenty-nine years, in which recovery and good function were attained by astragalectomy and tarsal resection. The average duration of the hospital stay after operation was sixty-eight days. In all cases a radical operation was done.

Diaphragmatic Hernia into Esophageal Opening of Diaphragm: Two Cases.—Frimann-Dahl's patients both had a transient positive benzidine reaction in the feces. There were no signs of compression of the hernia or of cancerous infiltrations in the digestive tract.

After-Examination of Patients Operated on for Inguinal and Femoral Hernias.—Moen's report covers 279 cases, 226 of inguinal, 53 of femoral hernia. He concludes that in inguinal hernia the method of choice is Bassini's operation, done as far as possible according to the originally described procedure.

Malignant Lymphogranulomatosis of Intestine: Case.—Ringdal's patient, aged 30, had had symptoms suggesting tuberculous disease of the intestine for about three years. Operation showed an intestinal disorder with a wholly atypical picture. There was partial hypertrophy of about 40 cm. of the caudal portion of the ileum without strictures. Along the mesenteric edge in this portion there was infiltration, with thickening of the corresponding part of the mesentery and enlarged, somewhat soft lymph nodes at the root of the mesentery. Resection of 1.5 meters of the small intestine was followed by an uneventful postoperative course. The microscopic diagnosis was malignant lymphogranulomatosis. Death eight months after operation is believed to have been due to a recurrence of the condition.

Course of Tuberculosis from Generation to Generation.—Andvord shows by tables and diagrams the mortality from tuberculosis in the same generations in England, Wales and Norway, beginning with the five year period from 1896 to 1900, and in Sweden and Denmark for a shorter period.

Periodic Height and Weight Measurements in School Children.—Holst says that these examinations may have their anthropologic significance, but that they are of noteworthy interest from the hygienic point of view is still to be established.

Lead Poisoning.—Hegna presents six cases of lead poisoning due to inhaling and swallowing lead dust. In four cases the intoxication occurred in spite of the use of masks during work. Two of the patients had a transient azotemia without other signs of a simultaneous renal disease.

Ugeskrift for Læger, Copenhagen

92: 621-646 (June 26) 1930

*Immunization Against Diphtheria. V. Bie.—p. 621.
*Vaccination Against Diphtheria. Monrad.—p. 627.
*Combating Diphtheria Epidemics in Orphanages. C. Jensen.—p. 630.
Vaccination with Diphtheria Anatoxin. K. Gaarde.—p. 633.
*Percutaneous Immunization Against Diphtheria. S. Schmidt.—p. 634.
*Vaccination of Student Nurses Against Diphtheria. V. Bie.—p. 635.
Immunization Against Diphtheria in Poland. O. Moltke.—p. 637.

Immunization Against Diphtheria.—Bie discusses isolation, disinfection, passive immunization, and vaccination, with especial attention to the use of anatoxin.

Vaccination Against Diphtheria.—Monrad says that, while vaccination with diphtheria anatoxin is safer than vaccination with toxin-antitoxin, vaccination against diphtheria is not satisfactory because of the possibility of harmful reactions and the frequent inconvenience of the method in practical life. He thinks that the percutaneous method (Löwenstein) should be tried, especially before the introduction of general vaccination of children.

Combating Diphtheria Epidemics in Orphanages.—Jensen concludes that anatoxin is a safe and effective prophylactic against diphtheria and should be applied as far as possible in children under 7 years of age.

Percutaneous Immunization Against Diphtheria.—In his experiments on guinea-pigs, Schmidt failed to produce any noteworthy immunity to diphtheria by the inunction of toxoid.

Vaccination of Student Nurses Against Diphtheria.—That diphtheria has practically disappeared among student nurses in Blegdam Hospital is ascribed by Bie to the introduction of antidiphtheritic vaccination.